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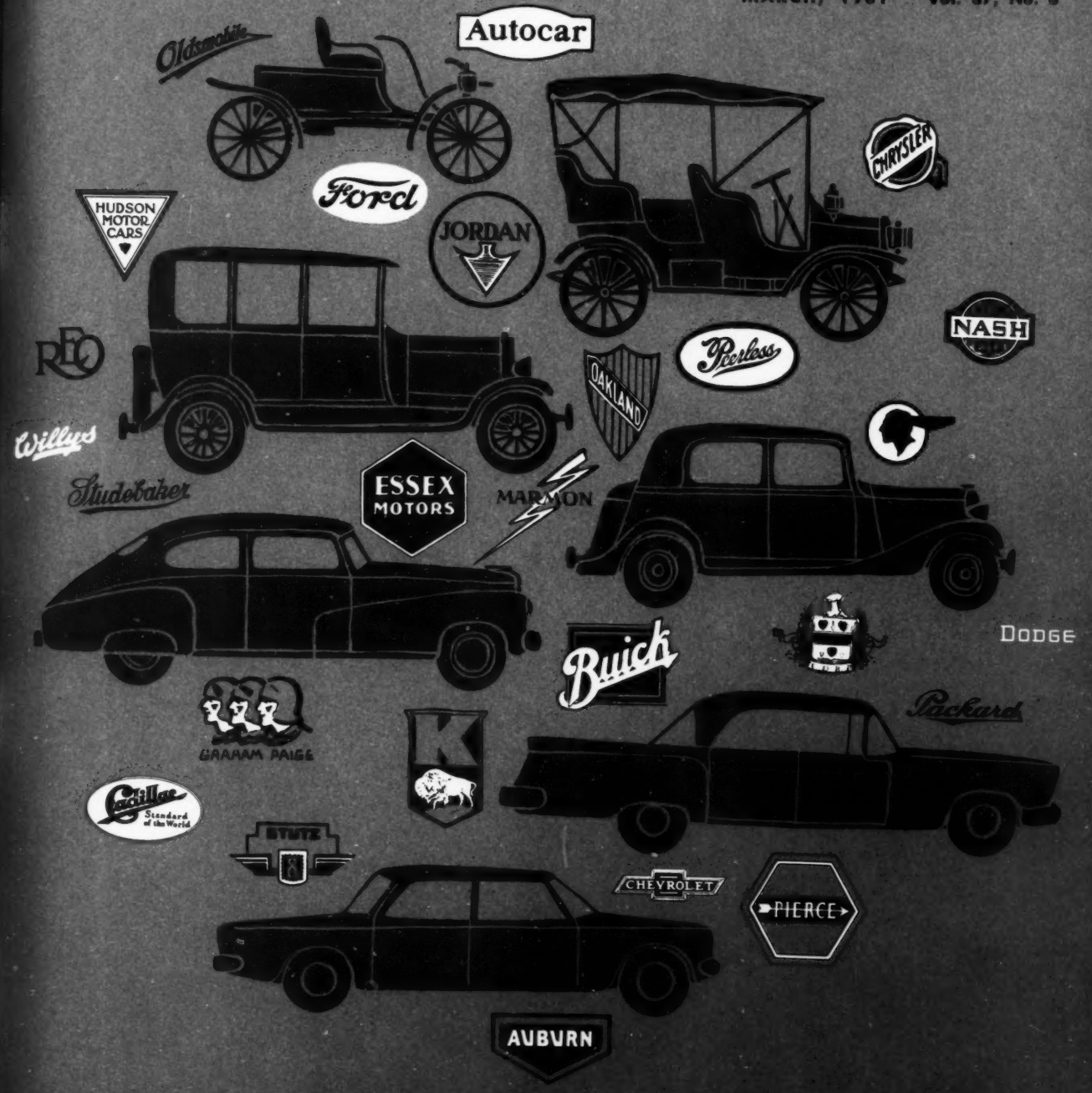

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Detroit Convention and Tourist Bureau

OUR COVERS

JUST AS FORESEEN by Frank Phillips and as portrayed on our front cover, a future for the automobile industry did unfold following the appearance of that first gasoline-driven auto on the streets of Detroit 65 years ago this March.

Someone, no doubt, will be sharp enough to see the counterpart of an embryonic automobile industry on the world scene today and to make as astute an observation as was made by Phillips in 1904. By that time Detroit already had four of the major producers in the infant automobile industry.

Said Phillips, founder of the oil company bearing his name, "I think people are going to buy quite a passel of these gasoline buggies and they need gasoline to make 'em go. It may be the thing has a future."

Detroit has ridden the wave of that future to become the world capital of mass production and know-how. Landmark of that capital is the Rouge plant of Ford Motor Company (back cover), the world's largest industrial concentration.

Within its two square miles 63,000 men and women are employed on production lines fed by the Rouge's own steel mills, coke ovens, glass plant, paper mill and 100 miles of railroad, augmented by a fleet of ships. ⊙

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WELCOME, SWEET SPRINGTIME

Catastrophies notwithstanding, florists grace the seasons with lilies and other beauties.

A YOUNG MAN c[illegible] his d[illegible] for Ap[illegible], 1[illegible], with these [illegible]ory wo[illegible] "T[illegible] s[illegible] lot [illegible] worryi[illegible] and thinking to keep [illegible] pla[illegible] of t[illegible] and [illegible]."

The p[illegible] was [illegible] living greenhouse [illegible] old Niles [illegible], Illinois, which held [illegible]or it[illegible] em[illegible] a myriad of pr[illegible]lems and pe[illegible] ing, commercial [illegible]ri[illegible]ure. [illegible] [illegible] was G[illegible]rge J. Ball, th[illegible] old, whose "[illegible]ng and thinking" abo[illegible] greenhouse o[illegible]ation were to continue [illegible]or nearly 50 more years.

But back in [illegible] h[illegible] greatest concerns was [illegible]hat the day forem[illegible]

James F. Gibbs Photo

Lilies are nearly ready for Easter when they are white, puffy and partly open. Planted last year on Christmas Eve, Easter lilies are kept at even 60 degree temperature, regardless of outdoor weather conditions. Rigid schedule begins in September when bulbs are dug, sorted and stored for planting time.

Welcome, Sweet Springtime

quit because he got only $38 a month; the teamsters were ready to strike for monthly wages of $45, and his propagator "got a lot of carnation cuttings mixed up."

Ball, who later founded the nation's largest seed greenhouse operation, was then facing some of the headaches of a fledgling industry that now sells more than $700 million worth of flowers and potted plants annually through more than 20,000 retail outlets employing 39,000 persons. Goods for the nation's retail florists are grown patiently, even tenderly, in nearly 10,000 greenhouses whose operators do much "worrying and thinking" to get their lovely products to market. To beleaguered greenhousemen protective services and financial benefits of mutual insurance have been indispensable aids for nearly 75 years.

Temperamental hothouse flowers by their very nature complicate the work of greenhouse owners. Further, they may be attacked by diseases or pests. But problems are not confined to long lines of benches where crops grow. Whether the greenhouse grows flowers, potted plants or vegetables, crops are produced in a structure of frames and glass panes, possibly as many as a million at a large establishment. Heating units, which may burn as much as $250,000 worth of fuel annually, must be kept operating. And air conditioning, working on an intake and exhaust principle, is often used to maintain precisely fixed levels of temperature and humidity.

Florists, a hardy and determined breed of workmen, stolidly face equipment maintenance, crop control, packing and shipping problems, and market fluctuations. Each can be controlled or at least predicted.

But severe weather is an enemy the florist and his fragile greenhouse cannot always overcome. Hailstones, even when not as big as baseballs, can break upward of 80 per cent of a greenhouse's panes in minutes, causing damage ranging from a few dollars to between $250,000 and $500,000. On July 1, 1950, a hailstorm hit Manhattan, Kansas, and sent ice pellets through 16,000 windows of 11 research greenhouses at Kansas State University. Commercial greenhouses have suffered losses tenfold greater than KSU's.

In some areas, such as hail-torn eastern Colorado, florists have tried hail screens which must be taken down during winter months. Recently some greenhouses have tried expensive plastic substitutes for window glass, but none proved entirely resistant to ultraviolet sunrays that crystallize polyethylene derivatives. Fiberglass was found to pick up dirt that cut sunlight transmission.

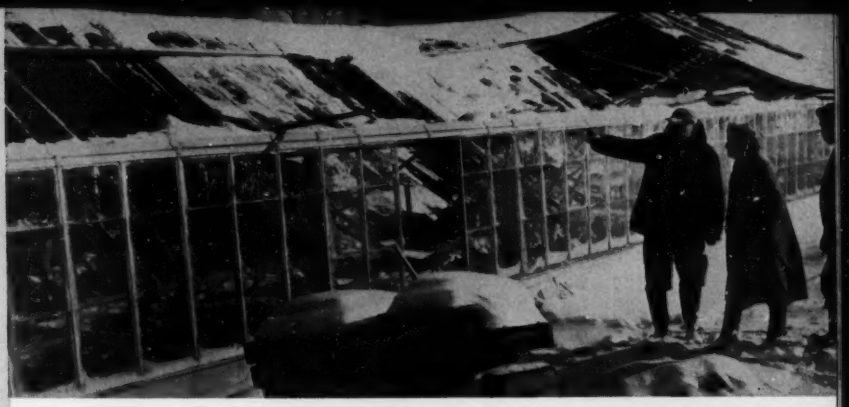
Mutual Now Provides Extensive Insurance

Lacking an effective physical safeguard against hail, florists turned to mutual insurance to gain protection at cost. Florists' Hail Association of America, now reorganized as Florists' Mutual Insurance Company, has for 73 years protected florists who previously paid exorbitant rates or took the chance of self-insuring. Today Florists' underwrites coverages on 75 per cent of the greenhouse glass east of the Rockies through policies held by more than 6,000 greenhouse operators. Coverages are not only for damage done by hail; a comprehensive greenhouse policy now provides protection against windstorm,

Perils of Greenhousing Covered by Insurance

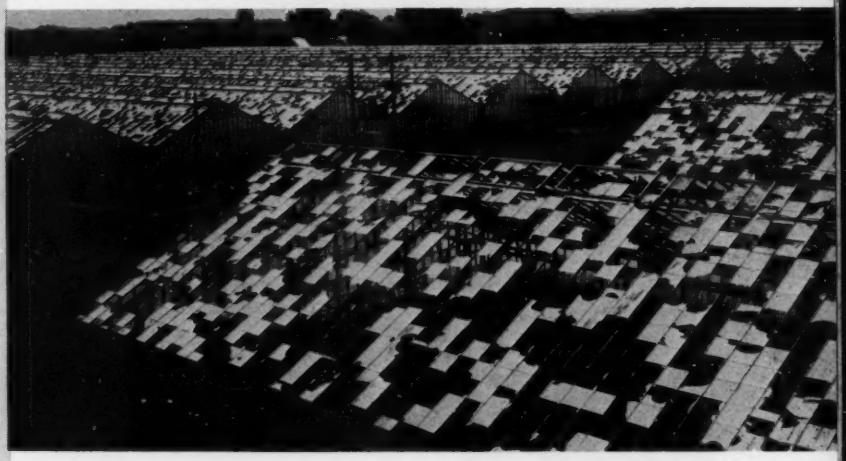
SNOW

Comprehensive greenhouse policy written by Florists' Mutual covered collapse of Conklin Road Greenhouses, Binghamton, New York. Wet, heavy snow last winter accumulated on the greenhouse causing damage of $3,700. Repair arrangements and loss estimates were discussed with owner before replacement work was done.



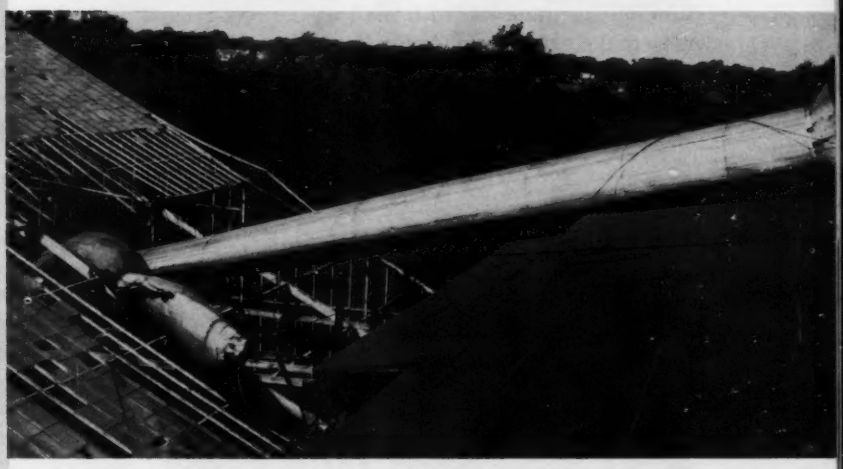
HAIL

Patchy skeletons remain at Gullett & Sons, Lincoln, Illinois, after hailstones broke 323,523 square feet of glass. The 1942 disaster caused damage amounting to more than $100,000, only a third of which was covered by Florists' Mutual insurance. Insured suffered due to inadequate coverage.



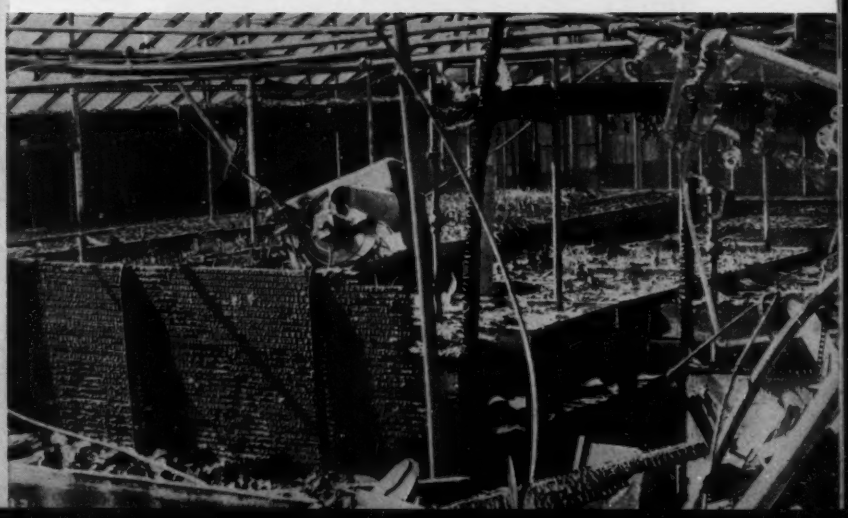
WIND

Fairview Greenhouses, Carthage, Missouri, got replacement settlement of $1,500 when a windstorm blew steel stack onto the greenhouse. Wind often blows glass out of greenhouse frames and does incidental damage by blowing heavy objects against fragile structures. Florists' covers such losses.



FIRE

Huge settlement in excess of $237,000 followed this 1957 fire at Heinl's in Toledo, Ohio. A nationwide operation, greenhouses lost considerable equipment in addition to plants and flowers. Fire started in wax melting vat in a service building surrounded by greenhouses which blocked fire fighters.



Four photos Florists' Mutual Insurance Company

cyclone, tornado, hurricane, riot attending a strike, civil commotion, vehicle and aircraft damage, and explosions other than those in steam boilers.

Loss adjustment policies of Florists' Mutual, substantially unchanged for 73 years, have never resulted in a contested claim. The initial policy adopted in 1887 said: "When a member has a loss, he calls in two neighbors or other disinterested parties. These two, along with the proprietor, proceed to count the broken glass, using a regular form furnished by the association. They then enumerate and make affidavit as to the correctness of their statements." One company official says this kind of policy has worked because, "The type of people we deal with are of the caliber that are willing to settle their claims when a reasonable amount is offered to them, and are not out to 'take the insurance company.'"

Settlement of losses usually begins with a telephone call that starts adjustment procedures. Florists' Mutual still settles a large percentage of its claims without personal inspection, but in the event of large loss the company may make arrangements for immediate repairs.

Florists' Mutual Insurance Company

Ichtlizochlti, Mayan god of hail, is depicted on this tile from the great Aztec Pyramid. Ancient people, fearing destruction of crops, invoked such images against hailstones.

It keeps a stock of emergency plastic repair materials on hand to be dispatched within 24 hours to any greenhouse hit by disaster. Florists' also has on hand a stock of glass panes.

In addition to underwriting losses to greenhouse structures and fixtures, the company has devised a "Val-U-Matic" crop coverage that permits clients to estimate the value of their crops for upcoming months. Losses are paid according to the client's estimate of his current crop value.

Present underwriting procedures include rates for 11 zones of varying hail and windstorm hazard, an evolvement from a flat nationwide rate adopted by FHAA in the past century. Coverages are now based on replacement value of the property. By contrast the old FHAA paid claims according to the number of square feet of broken glass.

In keeping with modern insurance practices, Florists' Mutual two years ago formed an inspection division that rates greenhouses of new clients. Check sheets require ratings of fire and watch services; condition of boilers and stacks; water supply; wiring; housekeeping; such equipment as generators, refrigerators, pumps and stokers; and construction of the greenhouse itself.

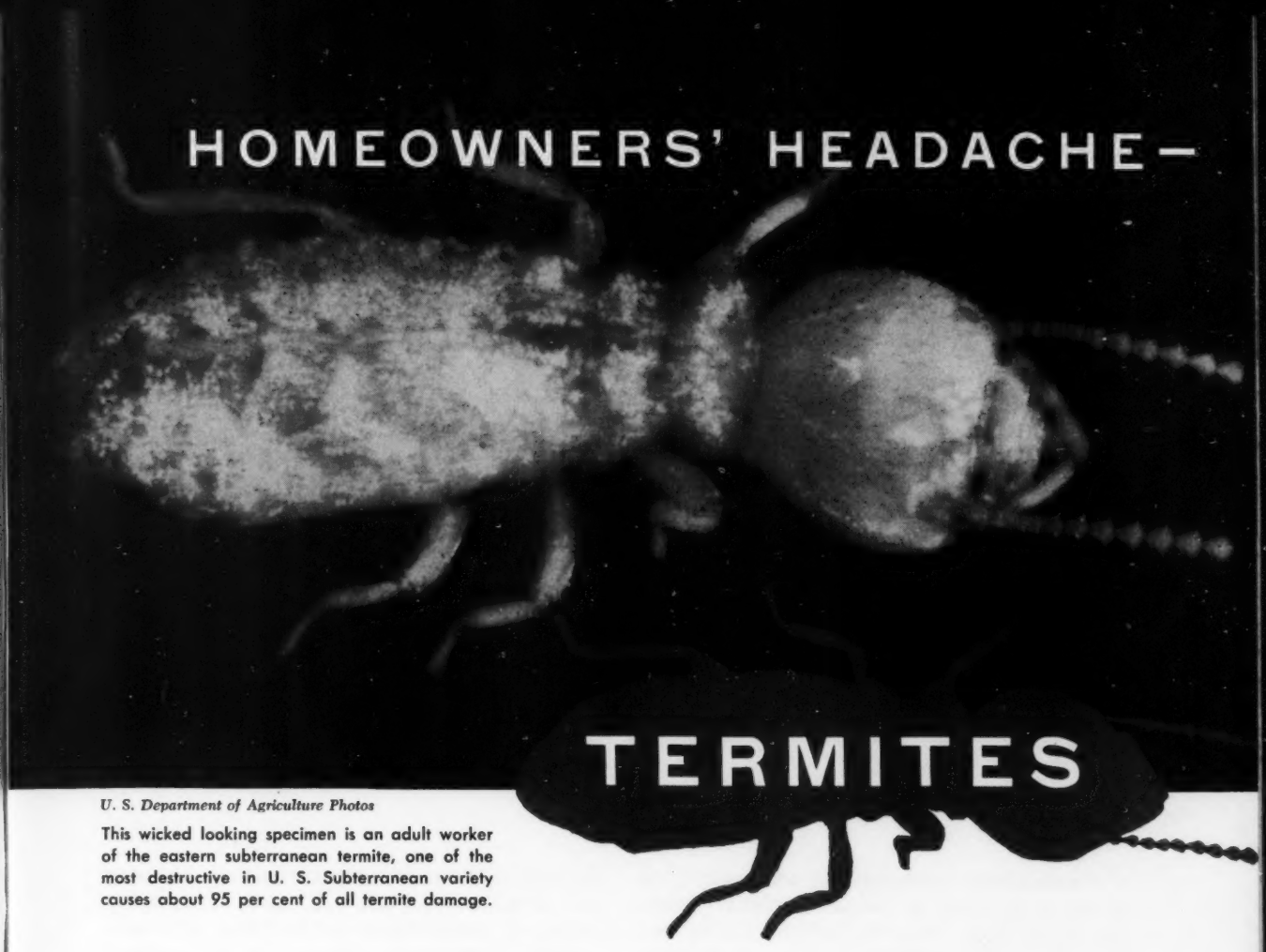
Despite the many perils covered by Florists' policies, insurance is estimated to cost only 1.7 per cent of the market price of florists' crops. In 1959, the company wrote premiums of more than $1.4 million, a substantial portion of some $37 million of all types of glass insurance premiums.

The company has continued to grow though it serves an industry complicated by the air age. Locally grown flowers have met with considerable competition from those grown outdoors in Florida and California and flown to markets by rapid, inexpensive airfreight.

Americans, however, have a seemingly insatiable demand for flowers and potted plants, particularly before St. Valentine's Day, Mother's Day, Christmas and Easter. Last year alone the Florists' Telegraph Delivery Association reported wire orders for more than a million Easter floral arrangements.

The air age also has added the glass-shattering sonic boom to other perils that come from the sky. Florists' Mutual has extended its comprehensive policy to cover such damage, another indication that it is helping an old business keep up with the times. ⊙

HOMEOWNERS' HEADACHE— TERMITES



U. S. Department of Agriculture Photos

This wicked looking specimen is an adult worker of the eastern subterranean termite, one of the most destructive in U. S. Subterranean variety causes about 95 per cent of all termite damage.

These wood-hungry insects cause an estimated $100 million in damages each year.

WORKMEN IN AN UNMARKED TRUCK pulled up to a fashionable home in a midwestern city and inconspicuously started digging a small trench along the home's foundation.

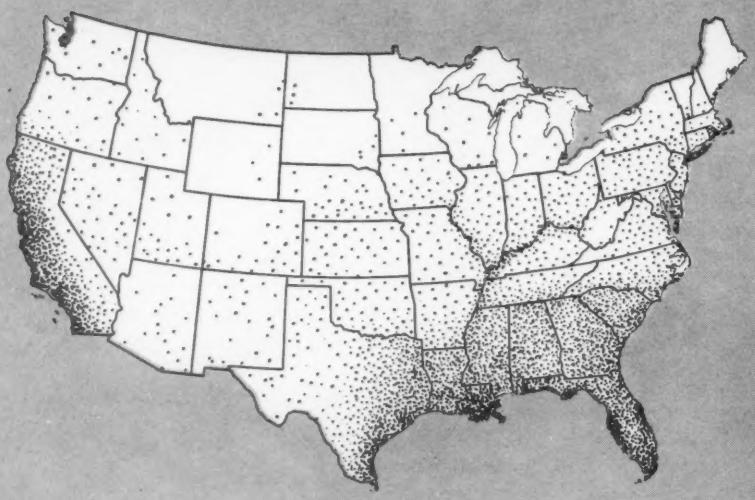
To the unknowing eyes of neighbors, the men might have been landscape gardeners. But their job, though somewhat less artistic than landscaping, was more vital to the homeowner. The men were exterminators, and their business was to rid the property of termites.

The unlettered truck was also doing a job: "saving face" for the homeowner. There have been instances where housewives have discovered termites in time to prevent serious damage, but rather than be "disgraced" by brightly lettered pest control trucks parked in their driveways they have allowed the nasty little creatures to eat away. Because of this feeling, most exterminators work incognito.

Termites, however, don't choose their victims through the social register. Each year thousands of homes are invaded by these strong-jawed insects, causing millions of dollars in damages and control costs. States most heavily infested are Florida, Louisiana, Georgia, Alabama, California, western Texas and South Carolina. The only state immune from termites is Alaska.

There are 2,100 known species of termites, but the chief troublemaker is the subterranean one which causes about 95 per cent of all termite damage in the United States. This variety

Homeowners' Headache—Termites



No state, with the exception of Alaska, is immune from termites. Greatest infestation, as shown on map drawn up by the U. S. Department of Agriculture, is in southeastern and far western regions of U. S.

is headquartered underground and, except for annual colonizing or "wedding flights" when they leave their wings behind for all to see, they stay out of sight.

Thriving on a diet of cellulose found in the woodwork of buildings, in books, furniture, paintings, insulation, business records, even in clothing, termites go about their work slowly but surely. Structural damage to a house may take a few years of uninterrupted chewing.

But chew the termite can. In one large city termites entered a three-flat building from the basement, worked their way up the walls to the top floor. When the building's owner lifted up a loose floor board and discovered them, extensive damage had already been done. Cost for extermination and repair work together amounted to nearly $10,000.

Too often persons mistakenly expect their insurance policies to protect them against this type of damage. Termites, as far as the insurance industry is concerned, are an "inherent vice" and therefore even the broadest form of homeowners policy has a termite exclusion.

The first and most important step in keeping termites from turning a home into a lunch counter is to break contact between all wood in the house and the soil. Even unattached boards or timber trash near a house can serve as bridges for the termites to enter the structure's framework. All cracks and crevices in basement floors should be patched. Good drainage around and under a house is also a deterrent, for the termites need moisture.

If possible, buildings should be safeguarded against termites in the planning and construction stages. Some cities specify such provisions in their building codes.

Construction on concrete slabs is highly susceptible to termite attack. Openings around plumbing fixtures, through expansion joints or cracks as tiny as 1/32 of an inch in the slabs can serve as doorways for termite invasion. Properly reinforced poured concrete foundations prevent shrinkage or settlement cracks. Soil can be pretreated with chemicals before the concrete is poured to prevent entry through expansion joints and around plumbing.

Termite damage to wood is seldom noticeable on the surface, for the insects avoid exposure to air. If they are forced to cross an unedible object they will build flat, earthen tubes along

← Termites found this doorway a delectable diet. Owner found termites after door broke away from its frame. Dr. Ralph Heal of the National Pest Control Association says sills, joists, wooden beams and girders are termites' prime house targets because of easy accessibility.

An estimated two million dwellings each year suffer termite damage and cause owners to seek professional pest control help. This home, built on a concrete slab, has wood placed too close to the ground. Owner discovered damage to sheathing and insulation after removing sideboards.

its surface. These tubes are usually about a quarter to a half inch wide. Once inside the woodwork, termites take great pains to go undetected. If, by accident, one should gnaw through the surface, it quickly performs an expert patching job which would make most carpenters envious. To remain alive, termites must stay within an area of even temperature and humidity. A break in their passageways could be disastrous because direct exposure has a drying effect upon them.

In addition to looking out for termite tubes, the homeowner can check for them by tapping beams or sills with a hammer or probing below wood surfaces with a knife. Telltale wing droppings, which usually appear during the spring of the year, are also a good warning that termites are around somewhere.

After initial steps have been taken, insecticides, preferably water emulsion chemicals, can be applied. These are introduced directly into the soil around the foundation through rod holes placed a foot apart or small trenches six to eight inches wide and about a foot deep. Chemicals most often used are chlordane, aldrin, benzene or dieldrin. These must be injected under pressure with extreme care, for the chemicals are poisonous.

Nearly all communities have professional exterminators (with unmarked trucks) who have specialized equipment for this work. Some guarantee it for five years and make annual inspections. Exterminators are also available to inspect homes for prospective buyers.

Although some methods of successfully battling termites are relatively new, the problem is not. According to the U. S. Department of Agriculture, subterranean termites have existed for millions of years. Some live just a year while others go about their daily chore of eating homes for more than 25 years.

Not everywhere, though, are they considered a problem. For example, a superstition among some people in the South is that a sack of termites hung around a baby's neck will help him through his teething period.

Most often, however, termites are associated with destruction. As Ogden Nash said in verse:

Some primal termite knocked on wood
And tasted it and found it good
And that is why your Cousin May
Fell through the parlor floor today. ⊙

New York Fire Department

Fires in today's New York are met with the might of aerial ladders, versatile squad wagons and other weapons from our fire-fighting arsenal. City's firemen each year battle 56,000 fires with equipment evolved from forerunners of 1840.

→

First of the steam-propelled fire engines, this machine designed by Paul R. Hodge lost a contest to a wagon of Captain John Ericsson, a Swede who later designed the Union ironclad Monitor. Steam power for fire fighting was popular by 1850's.

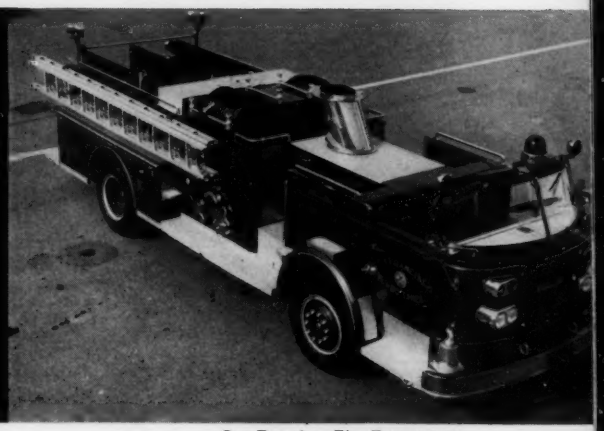
Chicago's American

Chicago's snorkels, the last word in life-saving devices, do jobs ladders and other standard equipment cannot perform. These tall snorkles easily reach fourth floor of a building whose walls weakened after five hours of fire. Agile towers carry firemen.

The Sen. Robert F. Wagner, one of 11 fire boats in service in New York, displays its pumping power before Manhattan's skyline. On her decks are permanent hose reels, an unusual feature in fire boats, useful in fighting dockside blazes.

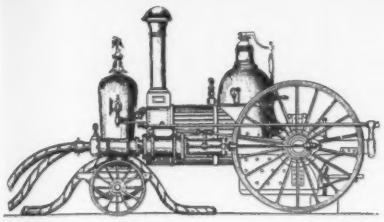
New York Fire Department

MORE MIGHT FOR FIRE FIGHTERS



San Francisco Fire Department

Gas turbine-powered triple combination pumper soon to go into service in San Francisco offers trouble-free operation and enough power for every fire task.



Foamier foam, tougher water, taller snorkels and super fire trucks ensure more protection.

WHEEZING AND BELCHING torrents of smoke, a cumbersome wagon rumbled into New York's City Hall Plaza 120 years ago this March bringing with it the mechanical era of fire fighting.

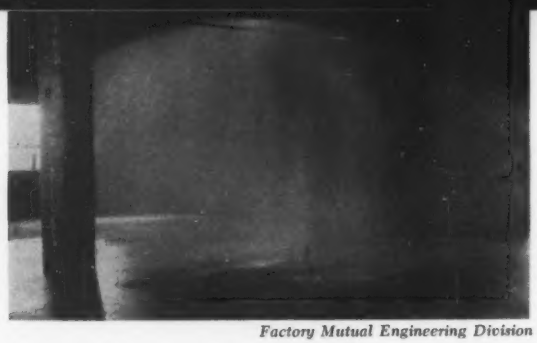
Though it moved sluggishly on its demonstration run, the machine designed by Paul R. Hodge was the world's first steam-propelled fire engine with a steam-driven pump. Destined for early retirement to a factory, Hodge's fire engine signaled the end of bucket brigades and hand-pumped fire apparatus. And it almost won a gold medal for its designer in a Mechanics Institute contest that advanced the design of fire-fighting equipment.

Those who witnessed the 1841 demonstration at City Hall Plaza were certainly fewer than the 11,525 men who wear New York Fire Department uniforms today. Any one of the watchers would find incredible a parade of the city's 346 pumpers, 165 ladder trucks and 277 other fire-fighting pieces including 11 fire boats. And who in old New York would have imagined that the city would someday have more than 89,000 fire hydrants and some 13,000 street fire alarm boxes?

Yet New York's progress in building a fire-fighting arsenal is only a good example of the nationwide effort to improve and expand fire-fighting facilities for our growing and spreading population. Impetus for improvement is provided by the tragic fire toll which in 1960 reached an estimated 11,350 dead and a staggering dollar loss of $1.5 billion. To reduce these losses producers of motorized fire apparatus each year manufacture 2,600 pieces of equipment, all of it containing improvements based on experience and recent technological advances.

Ever since the first steam-propelled fire engine was demonstrated, manufacturers have aimed to get the highest horsepower per pound of engine weight. Last year American LaFrance Corporation, one of the major producers of fire apparatus, delivered to San Francisco a ladder truck whose Boeing 502 gas turbine engine develops one horsepower for each of its 335 pounds. As it has only seven moving parts, the Boeing engine is not only efficient but easy to repair. It will soon be used in building inexpensive fireboats as well.

San Francisco Fire Chief William F. Murray endorses the new LaFrance-Boeing ladder truck and adds this evaluation: "Official pumping tests were met with ridiculous ease and passed all requirements with flying colors. The unit met our rather severe road tests, including cer-



Factory Mutual Engineering Division

Umbrella spray pattern of standard fire sprinkler is shown in Factory Mutual laboratories, Norwood, Massachusetts. In 1952 engineers there developed sprinkler with improved spray.

More Might for Fire Fighters

tain performance up to 22.2 per cent grade in San Francisco's hilly terrain, with consummate ease. Noise level, though different from that produced by conventional piston engines, is about the same at normal operations and is considerably reduced when pumping at higher rpm. Fuel consumption, while double gasoline consumption, is offset by the use of diesel fuel at half cost. There are no oil or water cooling problems."

Snorkel Hailed as an Aid in Rescues

While more efficient propulsion, pumping and auxiliary engines are being developed for fire trucks, an old tree surgeons' aerial device is coming to be used by more U. S. fire departments. It is the snorkel, long used by tree trimmers and bulb changers, but put to fire fighting only in 1958 when Chicago Fire Commissioner Robert Quinn realized its versatility and its potential for lifesaving. Snorkels, now manufactured by 13 firms, are jointed steel towers that can be twisted and raised to any spot on a burning building where water is needed or a victim is awaiting rescue. It is as a rescue device that the snorkel is expected to prove itself. Its main advantage in rescue operations is that fire-panicked victims are far more likely to climb aboard the elevator-like snorkel than they are to climb down a precarious ladder or dive into a net. Snorkels, which may carry hoses, also provide solid platforms from which firemen can work from heights of 40, 80 or 100 feet.

Before firemen even arrive at a fire there is now a chance for bystanders to help quench any kind of blaze with a new all-purpose dry chemical fire extinguisher approved by Underwriters' Laboratories. Developed by Germans and patented here by Alim Corporation, the new non-caking, moisture repellent chemical is effective on fires of Class A (ordinary combustible), Class B (flammable liquid) and Class C (electrical). Fire prevention engineers suspect that the new chemical, which swells in contact with heat, may also be used against fires in combustible metals such as magnesium.

Another device that fights flames before firemen come is the improved automatic sprinkler head developed by Factory Mutuals. It forms an umbrella-shaped pattern. Moreover, the latest sprinkler heads break water into miniscule drops, thereby increasing heat absorption capacity as much as 35 per cent.

Fire prevention authorities have high hopes for a new high-expansion foam that will completely fill a burning area instead of merely covering its surface. It was developed by private industry in co-operation with the U. S. Bureau of Mines. Foam which once expanded to a ratio of only 8 to 1 was boosted to 600 to 1 and recently to 1,500 to 1 by using special forcing equipment. Apart from its anticipated use in mines, the foam may effectively fight fires in piles of rubber tires and in lumberyards.

Water, still the basic fire-fighting agent, is being made tougher by Syracuse University researchers who have developed a chemical that improves water's viscosity, thereby boosting its blanketing ability and its adherence to vertical surfaces. Syracuse scientists are also at work adding opacifiers and detergents to water. The opaque quality of the improved water reflects radiant heat away from burning structures, and detergents disperse the opacifier particles in suspension to spread more water over burning surfaces.

Firemen of the future will not only come to fires better equipped, but better dressed as well. Aluminized suits have been fabricated that permit firemen to virtually walk into flames without danger. On his head, the well-dressed fireman may soon wear a helmet equipped with a small transistor receiving set to enable his chief to give warnings and orders regardless of noise or obstructions. Compact breathing equipment now aids firemen who must face deadly fumes; these masks, too, may be equipped with communications devices.

Add to these recent refinements fog-spray nozzles and lighter, more compact dacron hose and one realizes how far and how fast fire-fighting equipment has developed since Hodge's steamer chugged into City Hall Plaza. ⊙

This computer system is making new oil history by masterminding crude-oil distillation.

PREMIÈRE OF A REFINERY ROBOT

IT IS STILL TRUE as the English poet, George Gordon Byron, wrote many long years ago: "Truth is always strange—stranger than fiction."

It is fiction that Vidar, god of silence in Scandinavian mythology, had a look so penetrating he could read men's most secret thoughts.

Stranger than that is an electronic Vidar now operating at the Whiting, Indiana, plant of American Oil Company, an affiliate of Standard Oil Company (Indiana). It reads 196 instruments every four minutes and types out orders every 20 minutes originating from about 75,000 stored instructions. Those orders, in turn, guide operations of a world giant, a crude-oil distillation unit, capacity 140,000 barrels a day.

With all due deference to the Vidar of mythology and fiction, this is the first instance in which a computer system has so completely controlled any industrial operation as complex as the American Oil refinery unit. This unit separates crude oil into 10 different streams supplying 6 million gallons of products every 24 hours. Most of these products are further processed before they become finished commodities, such as gasoline. The electronic Vidar's mastermind of the entire operation guides the adjustment of up to 19 controls as needed to maintain top operating efficiency.

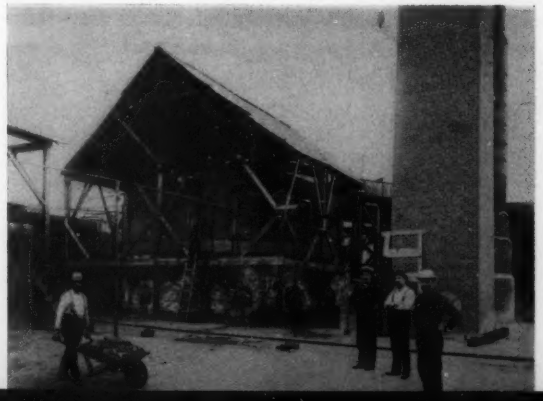
Eventually the control settings will be adjusted automatically by the computer in what is known as closed-loop control. In the earlier stage of the installation, the controls were set manually under open-loop or semiautomatic control.

Close guidance of the high degree now maintained under the computer program was once impossible. Calculating similar data manually would have given the needed information too late to be useful. Furthermore, the computer readily handles the complex task with time to spare for work on other scientific assignments. Chemical and control engineers from American Oil Company and the International Business Machines Corporation have jointly been developing the process control since July, 1958.

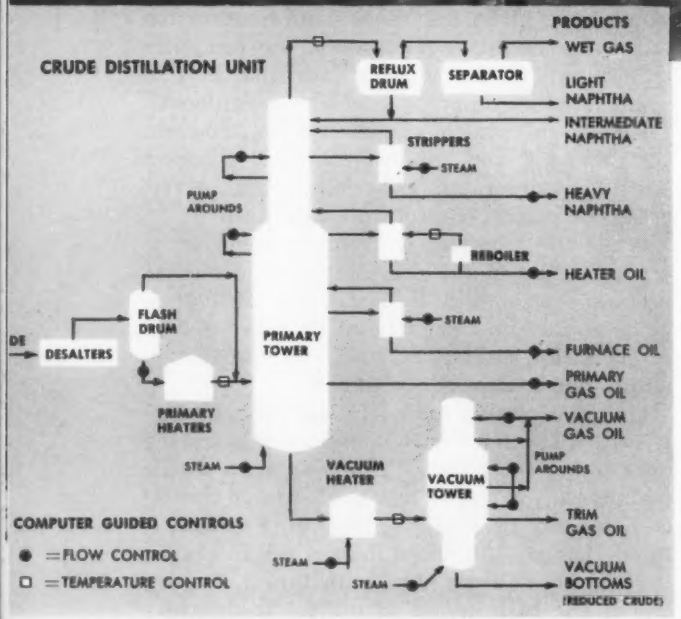
While the American Oil refinery computer is a notable first in size and complexity, computer process control also is now being used or is being applied on a shakedown scale in the field of chemicals, electric utilities, steel production and in petrochemical operations.

Mutual insurance has a long-established affinity with all such industrial developments tracing back to the early 1800s. That was when textile manufacturing was as new as electronic control is now and Zachariah Allen, of Providence, Rhode Island, introduced mutual fire insurance into the infant world of manufacturing. In fact, one of the basic tenets of mutual insurance—the prevention of losses so that protection may be provided at cost—has expedited computer process control in oil refining. Officials of Amer-

Crude-oil distillation, basic in refinery operations and now computer controlled in the epochal American Oil system, was first done a century ago in such stills as this one at an Oil City, Pennsylvania, plant where the new industry pioneered.



Largest in the world, this complex distillation unit is now computer controlled for peak efficiency in separating 140,000 barrels of crude oil every day into ten streams of products.

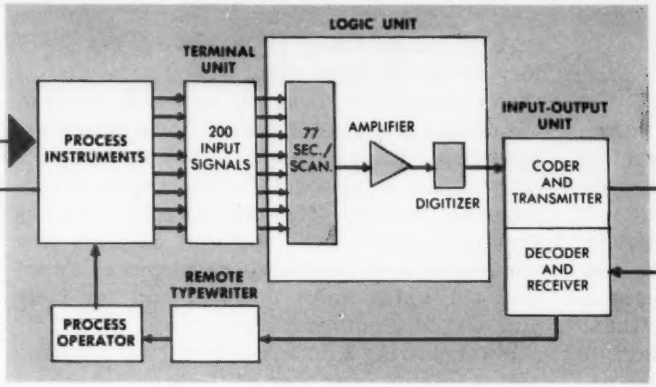


From the primary tower some 90,000 barrels daily are removed as overhead and sidestream products, while 50,000 barrels are piped to the vacuum tower to be refined into other products.

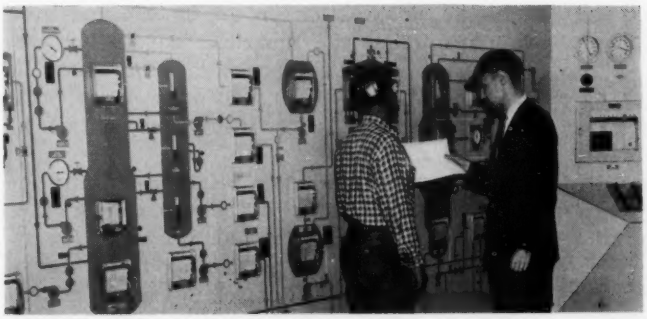
ican Oil point out that awareness of the need for safe operation has resulted in procedures and special equipment that have allowed the company to capitalize on computer process control.

How that also pays off in potential insurance premium savings is illustrated in an example cited by C. Henry Austin, manager of the parent Standard Oil Company insurance department. The insurance premium for a 40,000-barrels-per-day fuels refinery in which the vulnerable units are properly dispersed and the fire-fighting equipment is fully adequate may total less than $60,000 a year. In contrast, for a refinery in which the units are not properly dispersed and in which the fire-fighting provisions are less than adequate, the annual premium can soar to more than $120,000.

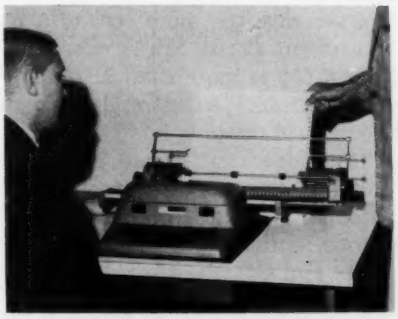
DISTILLATION-UNIT OPERATIONS



Signals from 196 process instruments come to this terminal. Transducers in panel at left convert signals to be phoned to computer room.

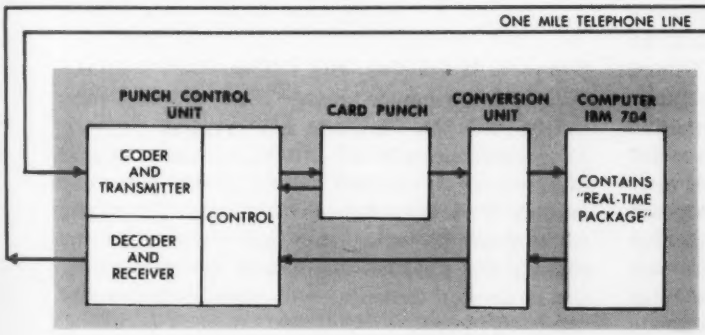


Typewritten computer instructions, issued hourly, are passed on to operator who will make necessary adjustments of instruments on the schematic control panel so that the huge distillation unit will function at top efficiency.

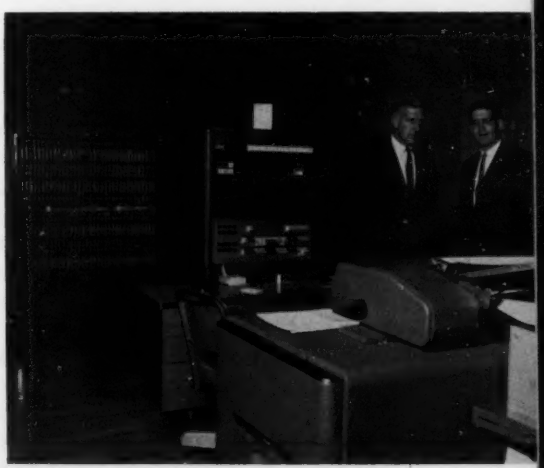


Computer's results in the form of instructions come back via this automatic typewriter to the engineers stationed in process control house.

COMPUTER-ROOM OPERATIONS



The process monitoring system begins here when the operator actuates the controls on the card punch. At the right is the conversion unit that prepares signals from the 196 process instruments for entry into the computer.



Computer center, with operator's console in the center background. Printer in foreground prints 150 lines of detailed information per minute.

Première of a Refinery Robot

While American Oil's loss prevention procedures and special equipment have helped set the scene for computer process control, the coming of electronics and automation have not negated insurance nor plant safety programs. Until 1955—and before computers came in—the oil refining industry had never experienced a single loss that exceeded $5 million. Since then, however, loss projection estimates have had to be revised upward in the wake of disasters resulting from detonations in pressure vessels and lines. Now, with the coming of computer control systems, the mere cost of a plant and the investment at risk can be increased by as much as $100,000 to more than $1 million.

Furthermore, catastrophes can still occur, although automation has eliminated many hazards of operations once performed manually. There is the case, for instance, of the fully automated aniline plant which blew up last October without warning, cause unknown, killing 15 and injuring 45.

Computer Control Is an Efficiency Move

While safety hazards in materials handling and machine feeding have been substantially reduced by automation, Glenn Griffin, educational consultant of the National Safety Council, points out that on-the-job hazards have increased in maintenance work and mental health.

"Some men are overcome with the urgency created by a machine's setting the pace and by the feeling that nothing must stop it. Others may become bored and do dangerous things just to provide a little interest and excitement."

American Oil recognizes that there are still limitations to be worked out of computer systems, but it is going ahead with computer process control in oil refining in a pioneering effort to get more efficient operation more rapidly. As the parent company president, John E. Swearingen, said, "Every new piece of knowledge we gain about our processes and the capabilities of computing systems for controlling them will help us reach our goal in efficiency."

Crude-oil distillation is an ideal first choice for computer control because it is basic to refinery operations. American Oil officials expect that the computer control techniques developed in this project will have wide applications for the company.

Furthermore, American Oil expects a satisfactory economic return from computer control of the crude-oil unit. That will be the converse of the disappointing results which some companies have had with computers. Huge "throughput" of the unit is being counted upon to make it economically feasible. Then too, as pointed out by President Swearingen, the unit employs new methods of instrumentation developed by American Oil which make it easier and far more practical to adopt computer control.

In considering economic returns, the company also is looking more toward the long-range impact of computer systems on over-all refinery operations. Plans are already developed for a computer installation on an Ultraformer unit, which employs the American Oil key process for raising octane number of gasoline. Catalytic cracking and alkylation are other likely prospects currently under study for control by computers.

Costs of the computer being used with the crude distillation unit will be split among other jobs. Actually, it devotes four minutes to scanning instruments and in another five to seven minutes completes an analysis of the operational position of the crude distillation unit and determines ways to improve the operation. This complete cycle takes place as often as every 20 minutes. In the bulk of the time the computer is not working on the process control of the crude unit, it is used in general engineering computations and on other mathematical problems.

Computer Is Creating, Not Killing, Jobs

As a consequence, rather than putting men out of jobs, the computer has created work for added specialists in computer programming and analysis of operations. Shift crews currently employed on the crude oil unit are still at the same strength, since they are responsible for making the physical changes in controls which the computer indicates will step up the operating efficiency.

Watching the computer go through its paces is like witnessing a modern Arabian Nights fantasy reminiscent of the magic words, "Open, Sesame!" "Shut, Sesame!", that operated the door of the hide-out cave for Ali Baba and the Forty Thieves. Those electronic words that the computer is saying to the refinery unit are indeed opening a door to a new era in the nation's 100-year-old oil industry. ⊙

FROM OUR ANNALS

Advent of the Automobile—March 6, 1896

Detroit Convention and Tourist Bureau

Detroit's Greenfield Village, founded by Ford, features this museum of 165 early automobiles.

PARENTAGE of the American automobile, if it were ever in doubt, could be credited to Harvard University. And if eastern interests had backed the gasoline motor car instead of steam and electric cars, Boston instead of Detroit might have been the auto capital of the world today. Insurance salutes both cities this anniversary month, for both are hubs around which the property and casualty insurance industry developed to protect the value of life and property in our multibillion-dollar automobile complex.

Harvard University ordered the engine which ran the first motor-driven vehicle to appear on Detroit's streets. But Harvard wanted the engine not for a car but to turn a telescope. And Detroit inventor Charles Brady King, who had been commissioned to build that internal combustion engine, literally turned the tide of history when he kept Harvard waiting while he tried out the engine inside a wagon. That crude prototype of today's 77 million motor vehicles first appeared on Detroit streets on March 6, 1896. Three months later, on June 4, 1896, Henry Ford steered his first automobile down Detroit's Bagley Avenue.

Why Harvard University came to Detroit for an engine is readily answered by the Detroit Convention and Tourist Bureau. In those 1890 days, Detroit was the center of production of benzene and gasoline engines for marine and lumber camp use. But for automobiles, eastern manufacturers and bankers turned to steam and electricity.

Within three years after King had hitched his engine to a wagon, Detroit opened its first auto factory—the Olds plant—in 1899. Some years later, in 1914, the assembly-line idea for automotive production, with all its portent in mass production techniques, was introduced when a Ford foreman towed an engine block on a rope past rows of work stations.

Detroit today is headquarters for corporations which manufacture more than 97 per cent of America's cars and more than 80 per cent of its trucks and buses.

Matching the mass production techniques developed by the automobile industry during the past 65 years, insurance companies of the nation are providing mass coverage for the owners and drivers of the nation's 77 million motor vehicles. In 1900 factory sales of automobiles were still only 4,192, as compared with the nation's 18 million horses and mules. An adaptation of the teams policy was made for the first form of automobile liability policy.

But tailoring a policy to a self-propelled vehicle was recognized from the start as vastly different from insuring a horse-drawn outfit. As Eugene F. Hord had pointed out to his insurance contemporaries: "The ownership and operation of an automobile involves many hazards; in fact it has been very aptly remarked, the only time when an automobile is free from hazard is when its tank is emptied of gasoline, the storage battery is removed or disconnected and the car itself encased in a fireproof vault." Among the public, early automobiles were considered such a disturbing newcomer on streets and highways that they were subjected to derision and punitive measures as "devil-wagons."

Yet insurance has helped to cloak the "devil-wagon" with a respectability and utility unmatched for few other inventions. The special automobile policy which supplanted the old teams form is still being modified just as Detroit adds refinements to models that have followed King's engine-propelled wagon.

Today an estimated 85 to 90 per cent of U. S. autos are covered by liability insurance. Who can conjure up what restrictions would be in effect on automobiles and their drivers today if the value of life, limb and property were not vouchsafed by automobile insurance policies? ⊙

TWENTY-YEAR PYRAMI

Mutual property-casualty insurance companies have made a seven-fold growth in operations since 1941.

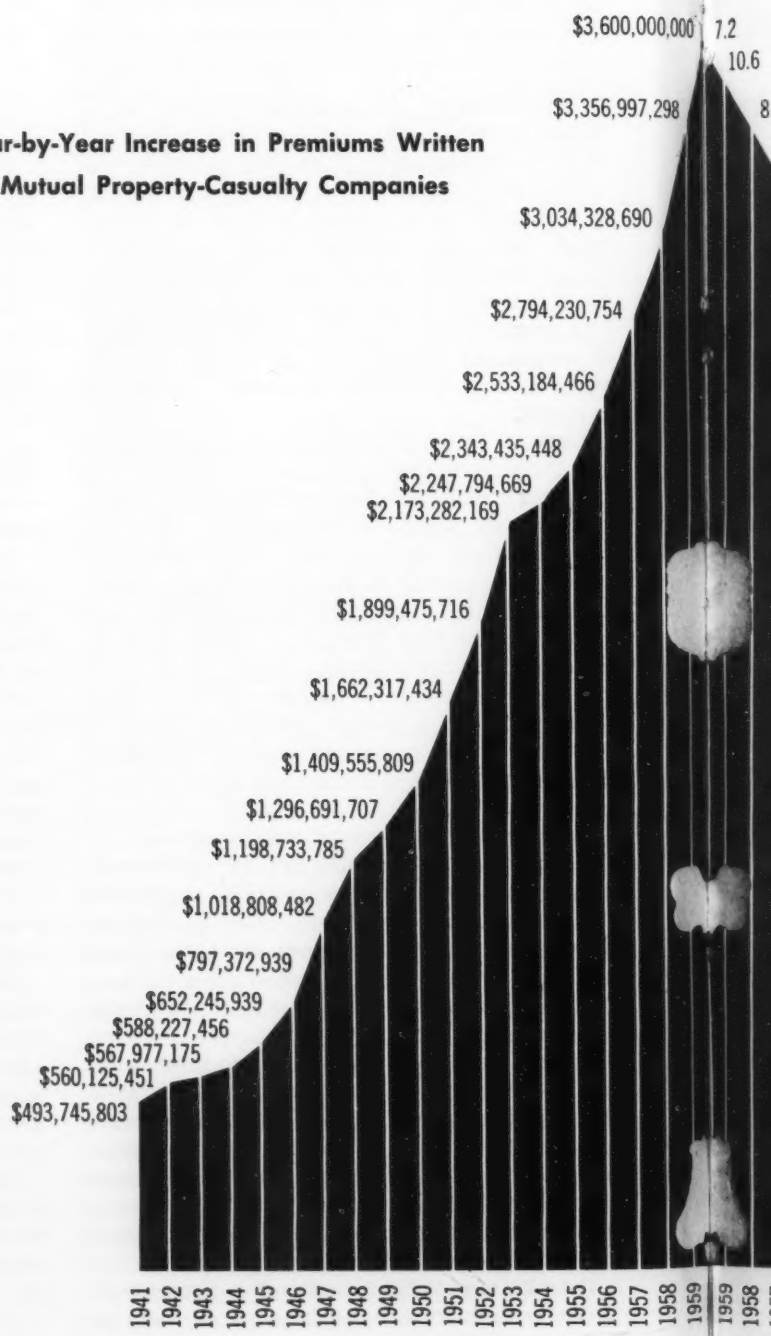
A BROADENING RANGE of coverage that began before World War II has given the American public an all-time high of mutual property-casualty insurance protection by 2,420 companies to start the decade of the 60s. Premiums written by 2,205 mutual property companies and 215 mutual casualty companies for 1960 are estimated at $3.6 billion, up 7 per cent from the $3.35 billion they wrote in 1959.

Pyramided on these pages are the mounting dollar values of premiums written by mutual companies and the percentage of increase over each previous year since 1941. In fact mutual insurance has advanced each year since 1938, and for most years beyond that back to the turn of the century.

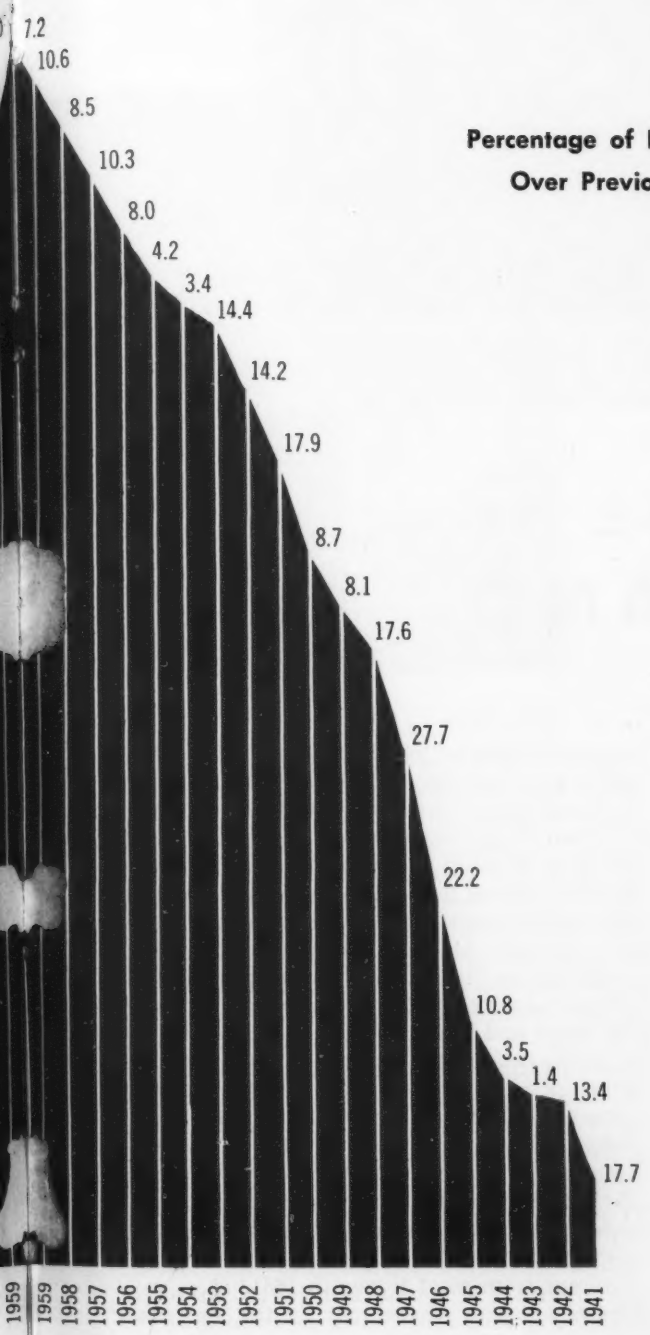
Beneath this pyramid of protection stands a heritage of history that began in 1752 when Benjamin Franklin conceived of the mutual insurance principle of protection at cost. Fire insurance, now part of the broad property category, was Franklin's infant that was to become the grandfather of many lines of mutual insurance.

Today's fire insurance policies include coverages for damage by windstorm, hail, explosion, riot,

Year-by-Year Increase in Premiums Written by Mutual Property-Casualty Companies



MID OF PROTECTION



riot attending a strike, civil commotion, vehicles, aircraft and smoke. Outgrowths of Franklin's basic mutual fire coverage include policies covering physical damage to property, business interruption, contingent business interruption, extra expense, rent insurance, profits and commissions, accounts receivable, replacement cost and fire legal liability.

Other major property insurance lines are ocean marine, which covers goods and carriers in transit, and inland marine, which covers a broad range of personal and business properties involved with some element of transportation.

Mutual casualty insurance, a business that has come of age in this country, covers broadly two types of risks. One is injuries to others for which the insured is responsible. This category includes auto liability, workmen's compensation, personal and business liability. The other class of risks covered by casualty insurance are those involving damage or loss to the property of the policyholder. These include protection against burglary, robbery and theft, damage to one's automobile, boiler and machinery damage, and destruction of glass by any cause. Fidelity and surety bonds also fall into the casualty insurance category as do the increasingly popular coverages for hospital and medical expense incurred by the insured and his dependents.

This broad range of insurance protection, much of it pioneered by mutual companies, continues to grow with the expanding national population and business community. ⊙

Phelps Stokes Collection, New York Public Library

HALLOWED HOME OF LIBERTY LAND

Now 300 years old, Bowne House is our national shrine of religious freedom.

BUT FOR AN AGE-DEFYING HOUSE built with joists and beams of his own choosing, John Bowne might have become the forgotten man of one of America's greatest heritages. He was only an obscure colonial farmer who got involved in a religious issue with the mother country because of a kitchen incident. After his trial and acquittal, he returned to obscurity and died in 1695.

Now, 300 years later, he is a patron saint of the 50 million dwellings in America, for his house has become our national shrine to religious freedom. It is so maintained by the Bowne House Historical Society and is governed and operated by men and women of every faith and creed, working harmoniously together. That is the same spirit which pervaded the house 300 years ago when John Bowne, at the risk of persecution, invited the Quakers of Flushing, Long Island, to worship in his kitchen. His trial and acquittal settled the issue of freedom of religion and helped establish the basic concepts of freedom written into the Bill of Rights (1791) amending the Constitution of the United States.

Such mastery went into the construction of this home and such care has been exercised in its preservation that a realtor could not improve upon the long-standing description of it:

> "Tramping through the woods with his wife, John Bowne personally selected the trees from which timbers were hand-hewn to build their home. So well was it constructed that today the original portion of the Bowne House —the kitchen with bedroom upstairs—is little different from what it was in 1661."

Here is a house singled out by the American

←
To build his 1661 Flushing, N. Y., home John Bowne tramped the woods selecting trees for the hand-hewn timbers. Architects now deem it one of 20 structures of national importance to be preserved at all costs.

Today the Bowne House is our national shrine to religious freedom, dedicated on October 10, 1945, and perpetuated by the Bowne House Historical Society.

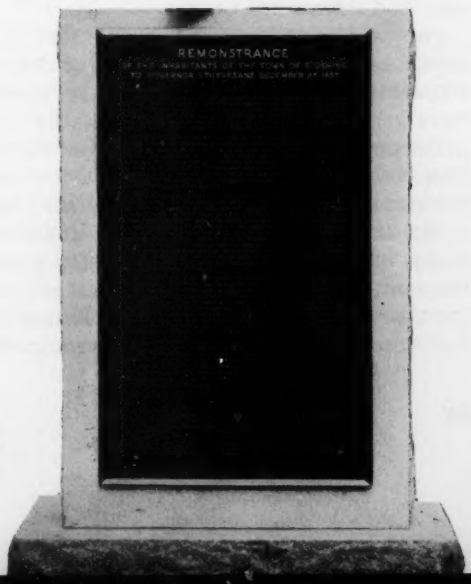
Institute of Architects as one of 20 structures of national importance which should be preserved at all costs. Here, too, is a house to which every American can turn every day, mindful of what President Eisenhower once said about the winning of freedom: ". . . Freedom has its life in the hearts, the actions, the spirit of men and so must be daily earned and refreshed. . . ."

Freedom was little more than a longing when John Bowne and his bride of five years, Hannah Feake, built their Flushing home in 1661. But Flushing was destined to be the testing ground. The patent which had been granted in October, 1645, by Governor Kieft of the New Netherland colony to a group of Englishmen to establish a town at Flushing was probably the most liberal arrangement for any settlement in America up to that time. Settlers were promised the right "to have and enjoy liberty of conscience, according to the custom and manner of Holland, without molestation or disturbance from any magistrates, or any other ecclesiastical minister, that may pretend jurisdiction over them."

That was welcome sanctuary for Bowne and other seekers of freedom in the New World. Only two of the colonies, Rhode Island and Maryland, afforded any semblance of true religious freedom. Even that was limited largely to the efforts of two men, Roger Williams in Rhode Island and Lord Baltimore in Maryland, rather than propagated by popular sentiment. Liberty of conscience was hardly more than a handy slogan for the promoters of colonial ventures and rarely went farther than to cover persons professing the Christian faith. For John Bowne and his like-minded contemporaries, that was not enough to square with their views on religious tolerance. Flushing became their haven, only to turn into their Gethsemane.

Under a changed administration in the province they found that the practice of their beliefs put them in defiance of the authorities. In due time they were to demand that the government extend to all others the liberties which they had been granted. To that end they were to declare openly their defiance of a law directed, not at themselves, but at a newly arrived group whose religious beliefs were different from their own.

But such a show of courage and audacity was not provoked while Governor Kieft remained in office. He put no ban on religious worship. It was not until 1652, after Peter Stuyvesant had been governor for several years, that serious interference was started with worship by other than the Reformed sect. Stuyvesant, a strict Calvinist, has been accused of invoking religious persecution on his own; historians consider it more likely that the Dutch clergy had begun to exert pressure to check the spread of other



Statue of the Flushing Remonstrance, American history document, which culminated in Bowne's winning of religious freedom. It stands on the Bowne home grounds.

doctrines in the colony. Many of the laity, both English and Dutch, supported and encouraged a policy of intolerance, with religion, political representation, and commercial and trading privileges being intertwined in the growing controversy.

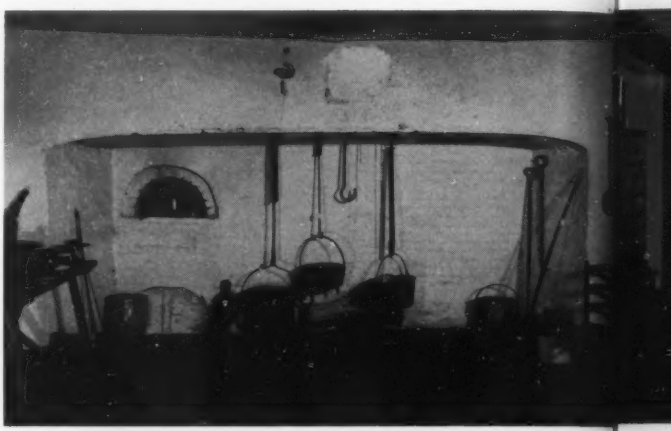
In time, and to varying degrees, Anabaptists, Lutherans, Jews, Baptists and others outside the Reformed church were subjected to persecution. The most violent wave of intolerance and persecution, however, was set off against the Quakers. Their numbers had been increasing, but what enraged Governor Stuyvesant more was that some of the inhabitants were showing the Quakers hospitality and even attending their surreptitious meetings. In a show of vigorous action, Stuyvesant had one man arrested and fined for holding a meeting in his house "in defiance of the order against conventicles" of any but the Reformed religion. He then issued a proclamation, which was printed and posted in every town of the province. Any person entertaining a Quaker for a single night would be fined 50 florins, of which one half was to go to whoever informed the authorities. Furthermore, vessels bringing any Quakers into the province would be confiscated.

Resentment and opposition of the townspeople to this new infringement upon their rights and liberties as provided in the town charter culminated in the now famous Flushing Remonstrance dispatched to the governor. A remonstrance was the customary instrument of the Dutch people for the expression of public opinion. Dated December 27, 1657, The Flushing Remonstrance was signed by 30 freeholders declaring in effect that no one, whether Christian, Jew or heathen, would be denied a welcome and God's blessing.

This was and is a document without parallel anywhere in America. Researchers of the Bowne House Historical Society say that historians have generally neglected to emphasize its importance in the evolution of democracy in the New World. John Bowne's name is not even on the document, but the arguments that he was to use later in his defense closely followed the theme of the Remonstrance. It truly expressed the sentiments of all the people, freeholders of the town never revoked it by any similar action nor were they deterred by the severity of the actions which Governor Stuyvesant took in the wake of the Remonstrance.

John Bowne became the climactic figure in the ensuing wave of religious persecution when he was arrested in 1662. This was shortly after he had built his new home in Flushing and made it a center of Quaker worship. Along with other townspeople, he and his wife, Hannah, had become converts after attending secret Quaker meetings in the woods near Flushing.

Bowne had settled permanently as a farmer in Flushing in 1655 after a brief experience with Puritans in other parts of New England. He



Here in the Bowne kitchen the first meetings of the Quakers were held in defiance of Governor Stuyvesant's ban, resulting in Bowne's arrest and banishment from New Netherland colony.

was a conservative, quiet-spoken, plain type, but strong-minded. Born in Derbyshire, England, in 1627, he had migrated to Massachusetts with his father and sister at the age of 22. John visited Flushing in 1651, but soon returned to Massachusetts where he prospered as a merchant before coming back to reside permanently in Flushing.

Bowne's arrest was the second of two experiences in religious persecution for his wife, Hannah. Earlier, her stepfather, William Hallet, had been deposed by Stuyvesant from his office as Flushing sheriff and fined for failure to take action against an itinerant cobbler, William Wickenden, preaching and baptizing in the Baptist faith.

When arrested in August, 1662, Bowne left his wife and two children critically ill and was

taken to New Amsterdam. Arraigned before the governor and the town council, he was found guilty of providing lodgings for some of the "heretical Quakers" and of permitting their meetings in his house "in contempt of our order and placards." For these "transactions of the most dangerous consequences," Bowne was ordered to pay a fine of 150 florins "with the express warning to abstain himself in the future of all such conventicles and meetings." A second offense would bring double fine; a further violation would mean banishment from the province.

The dining room, added to the Bowne House in 1680 and now restored, contains among other fine pieces the highboy, which is partially seen at left, William and Mary style, trumpet legs.

Not to be dissuaded from his beliefs and convictions, Bowne refused to pay the fine or to renounce his rights to religious freedom. Nor was he broken by the subsequent measures, first solitary confinement in the New Amsterdam fort on a diet of bread and water and then more gentle methods of persuasion. Thereupon Governor Stuyvesant deported him to Holland as an example to others.

In the presentation of his case before Holland's Amsterdam Chamber of the Dutch West India Company, governing body of the New Netherland Province, Bowne made such an earnest plea for tolerance and liberty of conscience that he was set free and permitted to return home. The chamber decreed that "the consciences of men, at least, ought to remain free and unshackled."

Today the trial and acquittal of John Bowne on the issue of freedom of religion are ranked in importance with the trial of John Peter Zenger, nearly 75 years later, establishing the principle of freedom of the press in America. Both men helped establish the basic concepts of freedom written into our Bill of Rights.

Bowne's home, on Bowne Street and Fox Lane in Flushing, became a national shrine to religious freedom in 1945 after its acquisition for that purpose by the Bowne House Historical Society, entirely unsubsidized by any outside agency. The Society previously had been conceived and founded that year during the Tercentenary Celebration of Flushing.

Bespeaking the lasting homage for John Bowne, Miss Margaret I. Carman, historian of the society, said, "We do not maintain a museum. We are privileged to perpetuate a national shrine to religious freedom, a symbol of our American heritage."

Insurance is a dedicated partner in the protection and perpetuation of that shrine, for the house and its contents are insured for the full valuation as appraised by the insuring company—$100,000. Among the treasures in the house is a collection of pewter—English, Continental, 18th and 19th Century American. In the best traditions of its own founder, Benjamin Franklin, mutual insurance endorses the loss prevention safeguard of chemical fire extinguisher bombs installed in every room of the Bowne House. Insurance, in fact, could have no higher mission than to vouchsafe the expressed hope of the American Institute of Architects that the Bowne House, as one of 20 nationally important structures, should be preserved at all costs.

What a priceless heritage it will always be was fittingly expressed by the late Judge Charles S. Colden, founding president of the Bowne House Historical Society, in the legend he composed for the hearth in the kitchen. It was in that room that the first meetings of the Quakers were held in defiance of Governor Stuyvesant's ban on the sect.

> "Here lived John Bowne who suffered arrest, imprisonment, separation from his home, his wife and children, and banishment to the Old World, so that a then despised people might worship God in this room and in the New World in the manner of their own choosing. Here was born Religious Freedom in the American Way of Life." ⊙

DESIGNED FOR LUNAR LIVING

Facilities being devised by Army engineers will ensure living and working on the moon.

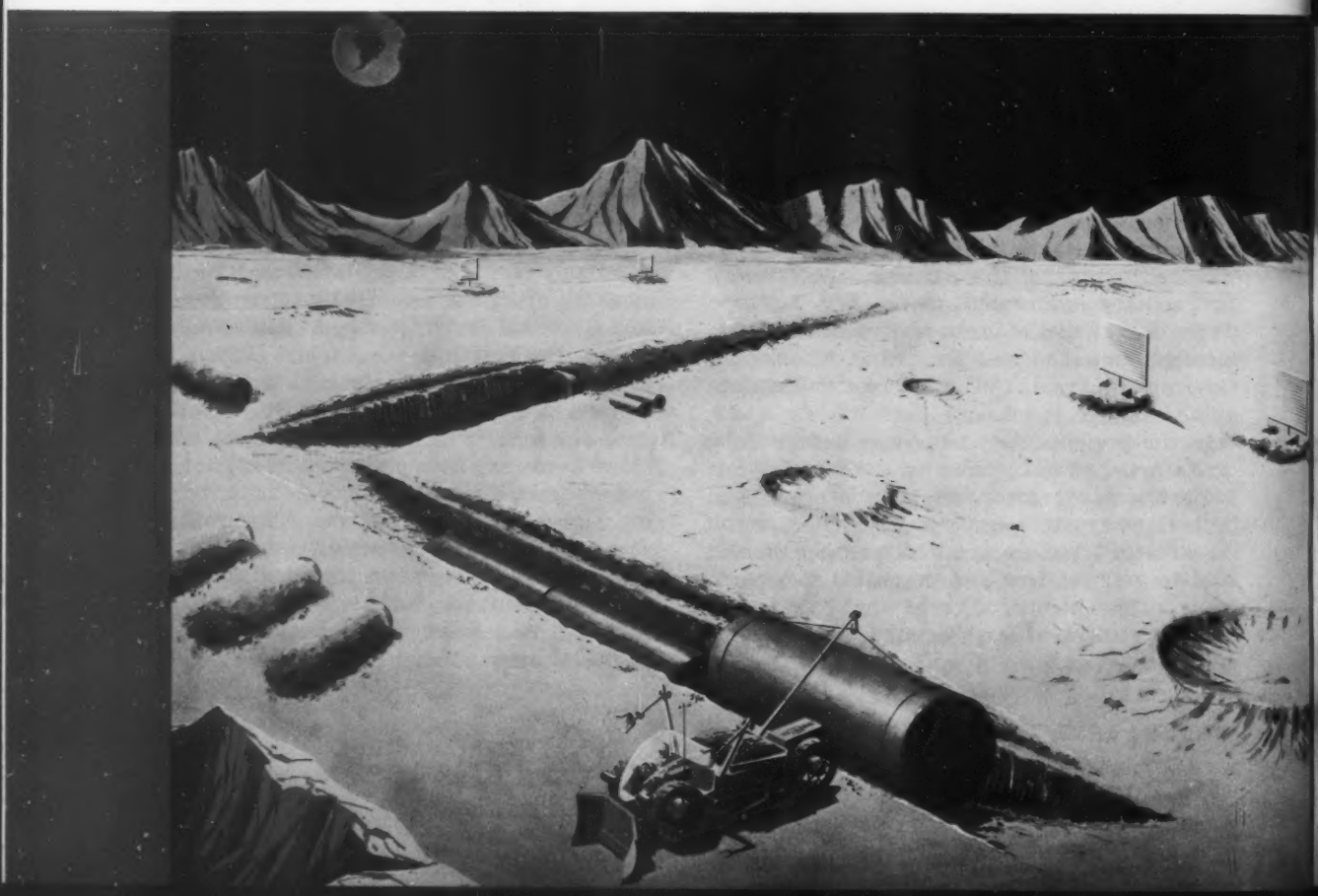
MANKIND'S AWESOME DREAM of flight beyond the sky has been reduced to a matter-of-fact timetable: A man in orbit by next fall, soft landings of rockets on the moon by 1964, manned exploration of the lunar surface sometime after 1970.

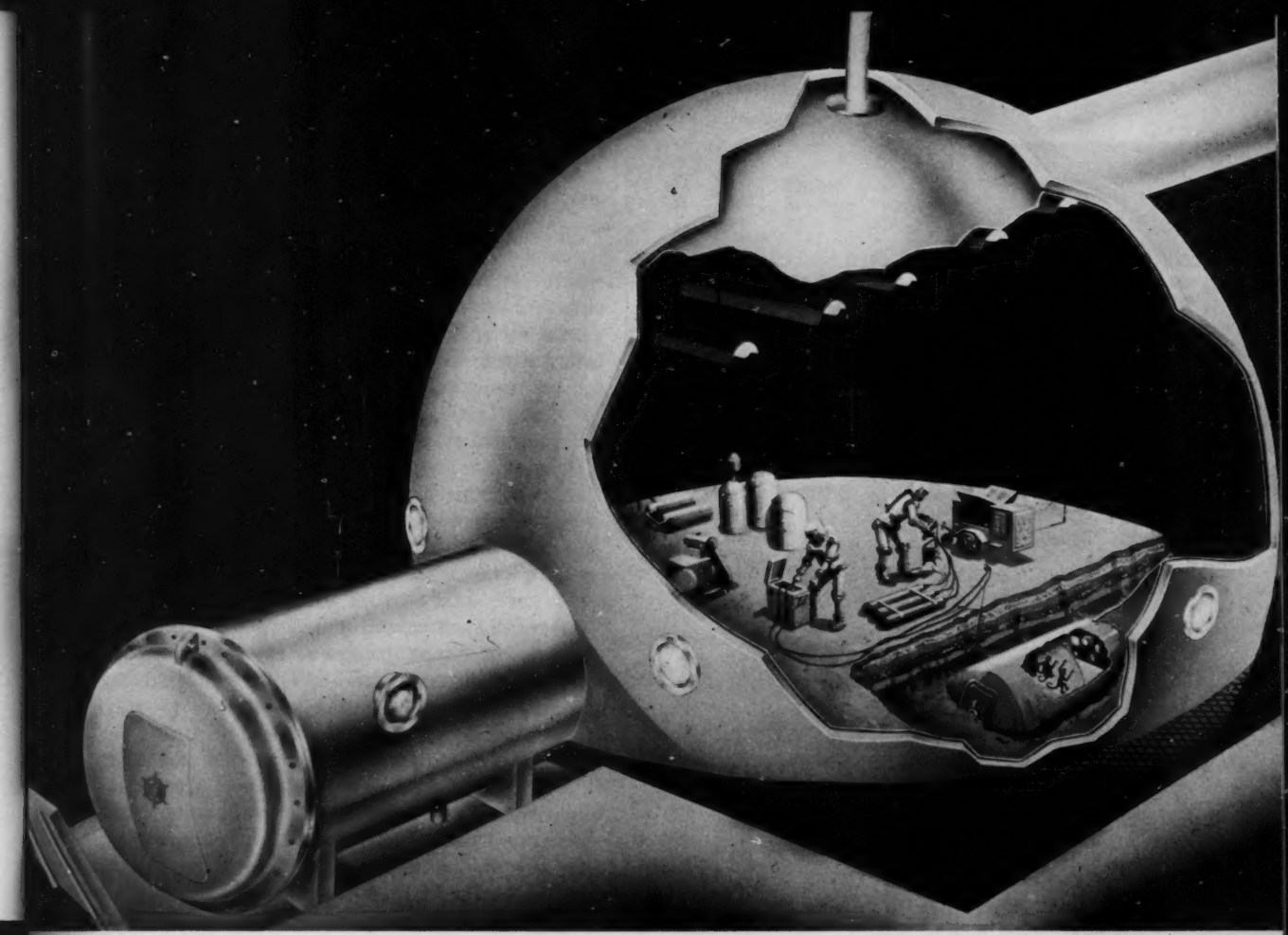
Aside from the formidable job of building and launching vehicles capable of transporting man safely across the empty reaches of space, scientists and engineers face the equally formidable task of building shelters to shield him from pitiless extremes of heat and cold and from cosmic showers of deadly radiation.

Yet Dr. Wernher von Braun, rocket and space expert of the National Aeronautics and Space Administration, has assured the insurance industry that "we could no doubt manage to place the first man on the moon or Mars—and keep him alive, before returning him—for a longer period than a native of the tropics could exist today in the Arctic."

Learning to exist in the Arctic, in fact, has provided NASA and the Army Corps of Engineers with a vast store of knowledge applicable to the job of survival on the moon. Mutual insurance's participation in the pioneer construction of bases in the Greenland icecap has likewise added to insurers' experience in safeguarding lives and property under hostile conditions.

Here, in drawings and photos, is the Corps' concept of how a moon base might be built. ⊙





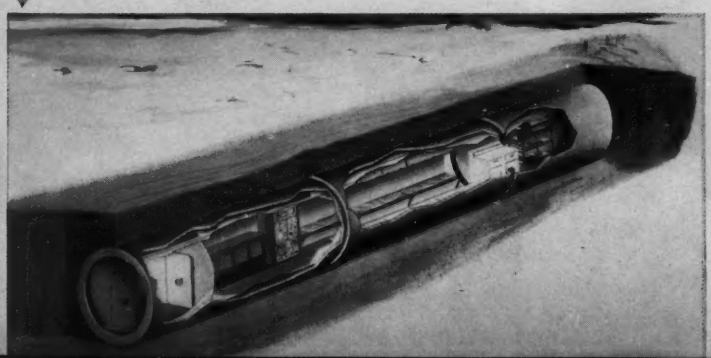
U. S. Army Corps of Engineers

← Early lunar outpost designed to house 12 men consists of 10 prefabricated modules, each to be transported as 8,000-pound payload on a Saturn rocket. All-purpose vehicle powered by a hydrogen-oxygen fuel cell will bury the units as protection against meteorites and to provide a stable temperature of −40° F. Surface temperatures are estimated to vary between +212° and −270° F. Electric power will be supplied by nuclear reactor-generators seen partially buried at right with their waste heat radiators standing above ground like signposts.

↑ Army Engineers want to build this environmental laboratory to simulate pressure, radiation and temperature conditions on the moon, using a liquid nitrogen refrigeration system and intensely hot lamps. Even if it is built, space experts say 10 to 15 years of basic and applied research will be needed to design all the support equipment necessary for a moon journey. Cutaway drawing shows engineers testing various pieces of power equipment, plus a pair of monkeys buried in simulated lunar soil. Test reactions are monitored by TV.

Interior view of the Army Engineers' proposed moon base shows (l-r) an air lock, air conditioning and power console, sleeping quarters and cooking area. Other units will serve as a communications center and command post, with a separate laboratory for research in biology and physical science. Entire base must be pressurized, since the moon has virtually no atmosphere. In addition to creating breathing problems, this means every motor, every bearing and point of friction must be provided with new means of cooling by direct radiation. ↓

Portable nuclear reactor goes under the Greenland icecap to serve the needs of Camp Century, carved out of snow and ice last fall for use by the Army's Polar Research and Development Center. Earlier, a mutual insurance company participated in building radar outposts across the frozen island, using its broad loss-prevention experience to ward off injuries in what is described as "the most hostile environment on earth." Construction and safety techniques learned in such projects give both engineers and insurers a head start on space plans. ↓



'PILLBOXES' FOR FREIGHT HANDLING

Container freight is faster and cheaper with less damage and pilferage.

AT A MARINE DOCK in the port of Newark, a trailer truck pulls in from New Jersey on Thursday with a load of TV sets bound for Miami. Instead of unloading, the driver parks alongside the ship, and a giant gantry crane reaches out to pluck the van off its chassis and stow it in a special compartment below decks.

The TV sets will arrive in Jacksonville Saturday night, be hoisted onto a railroad flatcar for an overnight run to Hialeah, and shifted onto a truck for Monday delivery to the customer's door. Only then will the 35-foot van be opened.

Enthusiasts claim shipments of this type herald a revolution in freight hauling within the next five years, benefitting shippers and carriers alike with faster deliveries, lower handling costs and virtual elimination of cargo damage and pilferage. The latter could bring about lower cargo insurance rates as well.

Cause for all this optimism—plus some equally vocal opposition—is the helter-skelter growth of a new concept called "container freight." The basic idea is to integrate truck, rail, sea and air transportation by packing cargo in a universal box that can be transferred quickly from one carrier to the other without unloading and reloading the contents.

Impressive progress already has been made,

Flexi-Van, based on container principle, allows truck driver to transfer highway vans on and off special flatcar without use of ramps or loading docks. Wheels are easily detached.

Turntable built into the piggyback flatcar engages the van's railings, then lifts it off the wheels hydraulically. Process is reversed for unloading, speeding delivery by several hours.

Milwaukee Road

particularly in marine shipments. U. S. steamship lines now have more than 20 container ships in service, with several others being built or converted. Sea-Land Service, Inc., has switched its entire operations to containers, operating six vessels between New York and ports in Florida, Texas, Puerto Rico and the Caribbean. Each vessel carries 226 containers 8 by 8 by 35 feet, which can be unloaded and replaced with an outbound container at the rate of one every four minutes. Instead of stevedores, the line uses automated shipboard cranes fore and aft to handle the prepackaged cargo. Sea-Land has working agreements with several East and Gulf coast trucking companies, the Florida East Coast Railway and a ferry line in San Juan to relay its containers to their destinations.

Matson Navigation, a Pacific Coast line, has converted all its ships on the Hawaii run to complete or partial container service, and American President Lines is readying two vessels with equipment compatible with both truck and rail service. Alaska Steamship Company transports containers as deck loads from Pacific ports to Alaska for Consolidated Freightways.

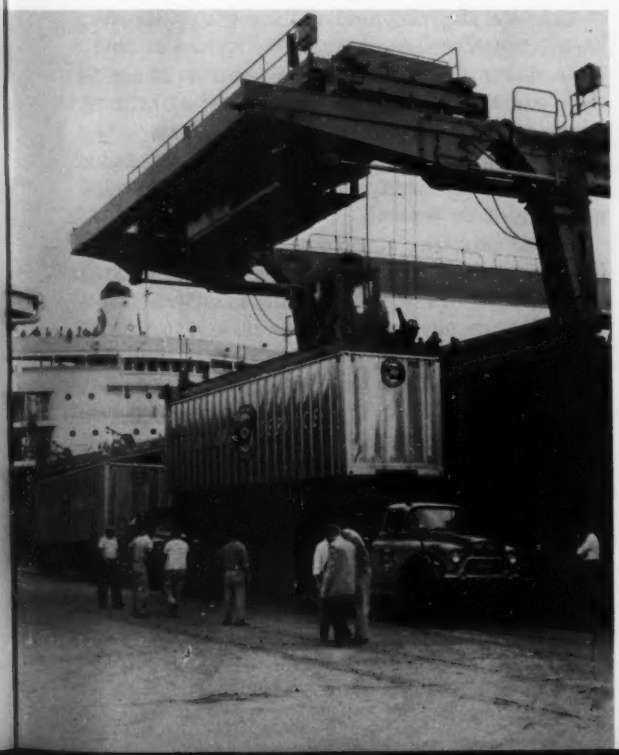
Several advantages of container freight already are apparent. An all-container ship can unload and take on return cargo in one day instead of the four to six days now required by conventional vessels. In addition, containers reduce labor costs in handling freight alongside the ship. In the port of New York, for example, it costs a steamship line an estimated $5.70 per ton to move cargo piece by piece from piers onto the ship. Shipboard cranes load container freight for about 8 cents per ton.

Marine underwriters report drastic reductions in pilferage and freight damage on container shipments, largely because the cargo remains sealed inside a weatherproof, fireproof, shock-resistive box until it reaches its destination. A few months ago, two million silver dollars were shipped unguarded from Washington to San Juan in one of these sealed containers. Conventional freight, by contrast, is handled 16 to 20 times on an overseas shipment, and about $3 million worth disappears each year in the port of New York alone.

Shippers also gain by avoiding interrupted refrigeration on perishable commodities and by savings in packaging and addressing individual pieces of cargo.

Despite container freight's fast progress at sea, its greatest ultimate promise lies inland on the nation's giant rail and truck arteries. Railroads have made a step toward the new concept with their fast-growing piggyback service,

Advanced container system used by Sea-Land Service allows direct transfer of van-sized containers from a truck or flatcar by shipboard cranes. Stevedoring costs are cut drastically.



All-container ship holds 226 van-sized containers, including refrigerated units for shipping meats, frozen fruit juices and fresh farm produce from Texas, Florida and Puerto Rico.

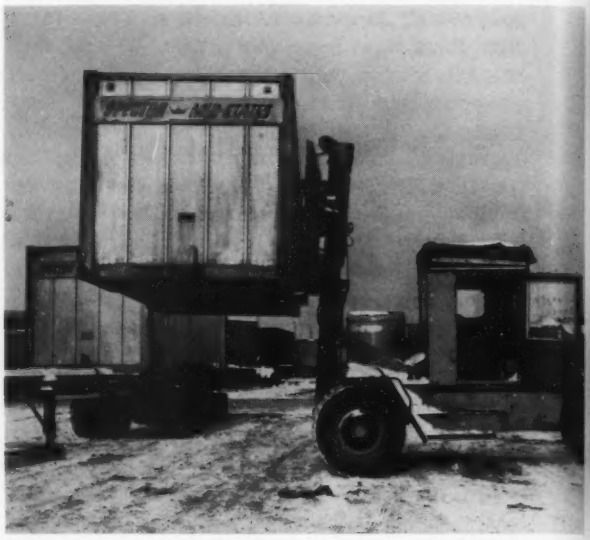
Sea-Land Service, Inc.

in which ordinary highway trailers are loaded aboard flatcars and treated as containers. More significantly, several rail and truck lines are moving ahead with rival systems that approach true containerization.

Most widely used to date is the Flexi-Van system, a method of piggybacking used by the New York Central, Milwaukee Road, Santa Fe and several other major railroads. Unlike ordinary truck trailers, these 35- and 40-foot vans roll on detachable wheels that are left behind when a van goes by rail or ship. The truck driver loads the trailer on a train by backing it onto a turntable built into a special piggyback flatcar. It only takes one man to swivel the van onto the flatcar and lock it in place.

A competitive system used by the Missouri Pacific, B & O, Chicago and North Western and several other roads relies on gantry cranes to lift truck trailers and containers on and off the flatcars. Still other railroads are using large fork-lift trucks.

Speed in freight handling is the chief advantage of all these systems, plus the added cargo protection afforded by the sealed containers and by special shock absorbers built into the piggyback flatcars. The New York Central has cut some of its New York to Chicago freight runs from 29 to 22.5 hours by using all-piggyback trains and by eliminating several intermediate stops. Combined with the Santa Fe's proposed "premium piggyback service," these containerized trains will provide three-day deliveries coast to coast—nearly two days less than for ordinary boxcar freight. Other railroads report similar gains.



Spector Freight of Chicago picks up small shipments in these 20-foot container boxes and mounts them two to a chassis for long hauls. Then they are separated again for quick delivery.

Chicago and North Western Railway

Piggybacking, a limited form of containerization, is making rapid gains in the auto business. These Ramblers are loaded first on highway "rattlers," then hoisted aboard flatcars.

Railway Express Agency has gone one step farther with passenger-train deliveries of small express containers, loaded on open flat cars so they can be hauled off quickly even at whistle stops. The service began late in January on the Pennsylvania Railroad's New York to St. Louis passenger run, using containers 4 by 8 by 8 and 5 by 8 by 8 feet.

In the trucking industry, carriers of household goods are using similar small-sized containers to move furniture and family belongings both domestically and overseas. National Van Lines of Chicago, which nestles six 364-cubic-foot containers on a special flat-bed truck, reports insurance claims have dropped 60 per cent since the container service was started. As one official put it, "We not only have less breakage, we've also just about eliminated mildew and water damage."

Family-Pak containers were designed for shipping household goods overseas, have now been put into service domestically as well. National Van Lines says damage is cut 60 per cent.

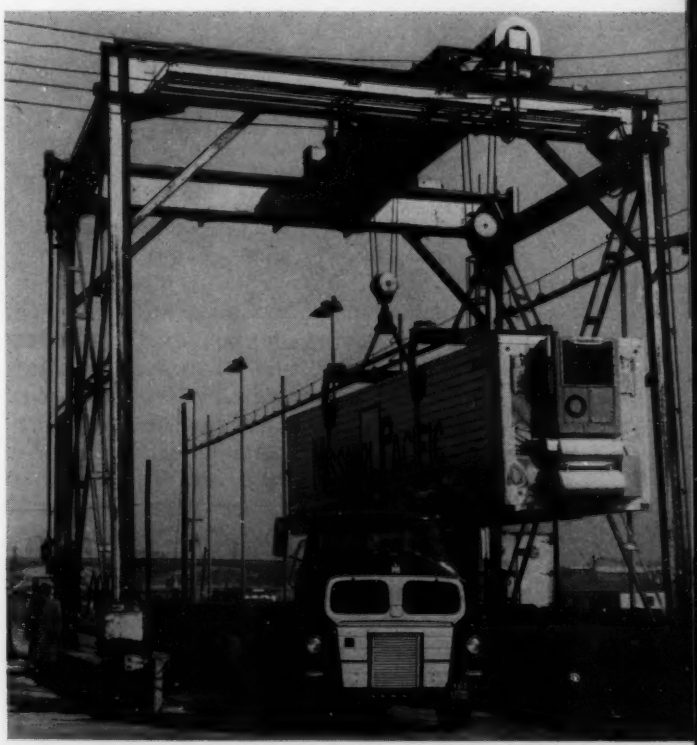
Lightweight aluminum containers called "Paul Bunyan Boxes" reduce handling time for American Airlines' airfreight shipments. Jet containers are contoured to fit plane's fuselage.

Most other truck carriers thus far have entered the container business only as feeder lines for railroad piggyback operations and container ships. Spector Freight System, Inc., is one exception. The Chicago-based truck fleet now uses 17- and 21-foot Mobilvans for what truckers call "double bottom" freight hauling. Two containers are mounted on a single chassis for over-the-road hauls, then split apart for quick delivery of both shipments.

Airlines also are beginning to use lightweight container boxes for handling both passengers' baggage and airfreight, although some lines fear partially-filled boxes will take up precious cargo space.

Despite container freight's obvious advantages, it faces several serious obstacles, both technical and personal. The most pressing problem is lack of standard sizes and handling techniques. In addition, traditional rivalries and union fears of job losses may hold back complete co-ordination of all freight systems.

Nevertheless, containerization is the most hopeful development in freight hauling since the invention of the refrigerated car. If it fulfills its promise, it can lead shippers, carriers and cargo insurers alike into a new era of transportation that is convenient, profitable—and safe. ⊙



Container freight system used by Missouri Pacific and several other railroads relies on gantry cranes to transfer trailers on and off flatcars. MoPac's cranes are located at 19 cities.

SPIKING THOSE POISON PERILS

Safeguards permit us to use a quarter-million products containing toxic ingredients.

POISON TRADITIONALLY has been regarded as a weapon reserved for jealous wives, witches and political assassins, who selected their victims with a discriminating eye and dispatched them with a lethal draught of some carefully-concocted potion.

Health authorities, manufacturers and insurance companies take a less romantic view. All three are currently engaged in a massive effort to control the far more serious hazard of accidental poisoning, which lays low some 20,000 persons each year in this country and accounts for more than 1,400 fatalities. Their problem is complicated by an estimated quarter-million U. S. products that contain potentially poisonous ingredients, with new ones being added every day. Consider these examples:

• Two laboratory workers at a New England woolen mill suffered permanent liver damage from inhaling carbon tetrachloride fumes during tests on wool fibers. They were evaporating the deadly solvent in an unventilated room —until the safety engineer for the mill's workmen's compensation insurer took a horrified look and had the tests halted.

• Two Massachusetts farm hands failed to use respirators and protective clothing while dusting turnips with an insecticide called parathion, despite printed warnings on the bag and verbal instructions from the foreman. They absorbed large amounts of the poison through their skins and lungs, and died three hours later.

• A 16-month-old Oregon girl swallowed a handful of a powerful alkaline detergent designed for use in automatic dishwashers, and succumbed to its corrosive effect.

Booby traps for inquisitive toddlers

• A 3-year-old boy raided the family medicine cabinet in New York City and ate 30 tablets of candy-flavored "baby aspirin." Because his mother considered aspirin to be harmless, she failed to call a doctor until the boy became violently ill. He died several hours later.

Accidental poisonings of the first two types are much less frequent than they used to be, largely because of strenuous efforts by industry and its insurance carriers to protect workers against on-the-job exposure to toxic materials ("G Men on Job Hazards," January, 1961, JOURNAL OF AMERICAN INSURANCE). Mutual insurance companies, for example, maintain an industrial hygiene committee to keep track of new materials and to publish instructions for their safe use, supplementing the work of their safety engineers in the field.

Poison mishaps in the home, which account

for the vast majority of all accidental poisonings, are much more difficult to prevent. About 90 per cent of the victims are small children, and the toxic agents usually are common household products not considered to be poisons in the ordinary sense of the word. Aspirin alone (mostly "baby" type) causes one-fifth of all poison accidents, and overdoses of other medicines such as oil of wintergreen, sleeping pills, digitalis, tranquilizers, liniments, laxatives and strong cough medicines account for another 25 per cent. Other household items that frequently cause trouble when swallowed include cleaning and polishing products, pesticides, petroleum distillates, lead-based paints and cosmetics.

Health authorities say the only way these poisonings can be prevented is for parents to keep medicines, bleaches, waxes, lye, rat poison, spot remover and other hazardous substances out of the hands of children. Significantly, one-third of all poisonings among children are caused by substances that have been removed from their original containers and stored in pop bottles, drinking glasses, bowls or other inviting places.

In addition to their own vigilance, parents are now getting substantial help from several sources in combating poison hazards. A new "hazardous substances" law that just went into effect requires printed warnings on all household products that contain potentially poisonous ingredients. Paint manufacturers have greatly reduced or eliminated the lead content of most interior paints, and drug companies in some instances have designed special caps for medicine bottles to make them difficult for a small child to open.

The medical profession also has contributed greatly to effective treatment of poison victims by establishing several hundred poison information centers across the nation, usually at hospitals and medical schools. There a pharmacist or doctor keeps an up-to-date file on the ingredients of thousands of household products and drugs, along with recommended treatment. Most centers will give first-aid instructions to anyone who calls, but will recommend further treatment only to a doctor. Communities interested in starting such a center can get advice and a current file of poison cards from the Public Health Service.

Danger may lurk in that country air

Quick help for all frantic parents

In addition, individuals can obtain a quick reference card outlining emergency treatment for common poisons by writing the American Medical Association's Council on Drugs, 535 North Dearborn Street, Chicago 10, Illinois. Cost is 5 cents for single copies, 1 cent each in orders of 20 or more. Some insurance companies distribute similar material to their policyholders as a public service.

Through the joint efforts of all these agencies —insurers, doctors, pharmacists, businessmen and parents—the poison hazard can be removed from the home and job and relegated once more to the pages of mystery novels. ⊙

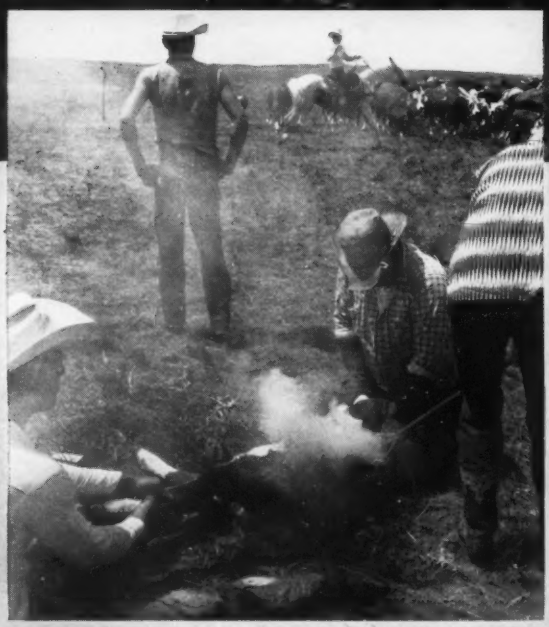
United Press International

Texas, long a leading cattle state, rightfully claims one of the country's most famous brands, Bar J Bar of Vice President Lyndon B. Johnson.

BRANDING TIME

U. S. has a record census of 71 million cattl
for this historical form of insurance.

Branding this season will be done against the background of a record 71 million head of beef cattle in the U. S. But branded or not, cattle are protected many ways by modern insurance.



Two Photos American Hereford Association

There are some 50,000 registered brands, each a distinctive coat of arms for the owner. Once the heated iron is pressed onto the hide, the animal is plainly marked with the design of the brand for its lifetime.

Bedecking the wall of the executive dining room in the First National Bank of Dallas are these 138 bronze replicas of Texas brands mounted on charcoal. XIT is among most famed of all time.

Ulric Meisel

IN THE BEEF COUNTRY

FOR $5,000 a U. S. rancher has now settled a mix-up in the ownership of an ill-fated cow. Assuming that the animal was his, he sent her to the slaughterhouse as a sterile and worthless brood cow. But her owner, having proved that she was still valuable for breeding purposes, recently recovered $5,000 judgment.

To prevent such cases of mistaken identity or outright expropriation, cowhands will be busy throughout the cattle country during the next three months practicing an ancient and simple form of insurance known as branding. Hernando Cortez, Spanish conqueror of Mexico, introduced it into the New World shortly after landing in Mexico in 1519. All of Cortez's horses, other livestock and property—and probably some of his men—were branded with three large crosses marking them unmistakably as his property.

For today's modern rancher, his brand is his coat of arms used not only to certify ownership but also to identify his "reputation cattle" in the market and distinctively distinguish his ranch and other possessions. In many ranch homes, the encrusted original branding irons will be found proudly displayed over the mantlepiece as treasured heirlooms.

This spring's branding season—March through May—will have the setting of an all-time record population of 71 million beef cattle. By the time the job is finished on the calves and other unbranded animals, 80 to 85 per cent of all beef cattle will bear the imprint of one or the other of some 50,000 registered brands, each saying in its own hieroglyphics *ecce signum*—Behold the sign!, here is the proof. Although the meat-eating public may never see a brand, one or more of them has appeared somewhere in the history of the 85 pounds of beef now consumed annually per capita.

Insurance Extends Cattleman's Protection

As an adjunct to the assorted livestock coverages provided by the insurance industry, the brands afford blanket ownership protection on cattle and calves from which the annual income has been $7.5 billion in recent years.

Singularly famous among all the brands is the Bar J Bar brand of Vice President Lyndon B. Johnson. Another national celebrity, Senator Clinton P. Anderson, New Mexico, and former secretary of agriculture, runs the Lazy V Cross brand on riding horses only on his Albuquerque ranch. This brand originated prior to 1880.

Hieroglyphics on the walls of Egyptian tombs indicate that oxen were branded to show ownership as early as 2,000 B.C.

Brands Are Linked With Chisholm Trail

The oldest of the U. S. brands came into use during the days of the great cattle drives north from Texas to Kansas when trail bosses and cowhands ran the hazards of Indians, rustlers, river crossings and stampedes on the old Chisholm Trail and its connecting routes. The Chisholm Trail, itself, was so named by the drivers after Jesse Chisholm, a half-breed Cherokee Indian trader (1806-68), who had a post on the Arkansas River and made regular journeys south to the North Canadian River. The earliest recorded drives took place in 1846, but they did not begin to follow their characteristic pattern until 1867 when Joseph G. McCoy, an Illinois cattle dealer, set up a stockyards at Abilene, Kansas, on the Union Pacific Railroad.

Along the trail, the brands were the only means of identifying cattle that had been stolen by rustlers or that had strayed or stampeded from the herd. Later, at the market, after new and smaller herds of cattle had been picked up from ranches along the way, the brands made it possible to separate the cattle by ownership.

Today at major livestock markets throughout the Southwest, brand inspectors of the Texas and Southwestern Cattle Raisers Association ride herd on the 50,000 brands that are in more or less regular use. These inspectors are so relentless and efficient in running down altered brands that cattle rustlers have just about been put out of business.

Furthermore, the modern cattleman has full protection against rustling and theft, as well as against many other losses, in the services rendered by present-day insurance. All the important livestock perils such as windstorm, hail, vehicle mishaps and theft are covered in standard policies. Broad coverage provisions extend insurance on livestock to include electrocution, attack by dogs or wild animals, drowning, acci-

dental shooting, loading or unloading mishaps, collapse of buildings, bridges and culverts, and collision or overturn of vehicles.

In fact, mutual insurance was perfecting its protective machinery at the expense of horse thieves while branding was beginning to put a curb on cattle rustling. Two examples are the Schaghiticoke Society for Apprehending Horse Thieves and Robbers, formed in Schaghiticoke, New York, in 1832, and the Trambauersville Mutual Horse Insurance & Detection Company, formed in Trambauersville, Pennsylvania, in 1868. In some respects these organizations were antecedents of present-day mutual insurance companies which now take over on cattle losses where the protective effects of the cattle brand and the brand inspector leave off.

Any sharp-eyed inspector can read the brands on cattle as readily as a stockbroker reads the symbols on the ticker tape. Tenderfeet and dudes can do likewise with a little study and practice. Cattle brands are always read from left to right, from top to bottom, and from outside to inside. Most designs are such that they are not readily altered and are of sufficient size to be read easily from horseback without being large enough to damage the hide.

Reading a brand is a matter of deciphering the letters, numerals, designs or pictures in the design. Take the single-letter brand R as an example. Turn the R backwards and the brand becomes the Reverse R. Lay the R on its back and the brand reads Lazy R. Add wings to the R and it becomes the Flying R. Add feet and the brand is known as the Walking R. Thus there are innumerable combinations of the letter R with numerals, other letters, designs or pictures.

Registration Protects an Owner's Brand

In the cattle country each county has a brand record book, and the brands in it are registered with a central state agency. Only one brand of its kind can be registered in a county. Yet some of the record books contain thousands of entries, including specimens centuries old.

The method of embossing the brand on the hide remains the same as it was in the frontier days—by means of a stamp iron. Altering a lawful brand also requires the use of an iron—a rustler's running iron which is a plain rod slightly pointed on one end with a round hook on the other end.

With a heated running iron, a rustler could write as deftly as one might use a pencil. Thus it was comparatively easy to alter a lawful stamp brand such as the Bar-C to the Bar-O, to change the figure 3 to the figure 8 or make some other almost indistinguishable change.

Every branding iron harbors its own story, and if need be, the history of the West could be written with these implements, starting with the large, ornate brands introduced by the Spanish Dons. American cowboys promptly adopted smaller stamp brands that were easier to apply and read. Robert Whaley of California's San Fernando Valley has a historic collection of more than 200 branding irons having an estimated value of $5,000.

Famous XIT Brand Has a Colorful History

History embracing the Middle West is encased in one of the most famous brands of all time—the XIT. It was designed by John Blocker about 1885 and used on what was once the biggest fenced ranch in the world. The XIT spread, almost as large as the state of Connecticut, covered 3 million acres in the Texas Panhandle. The land was patented to a Chicago firm by the state of Texas in payment for the building of the state capitol at Austin. XIT is the symbol for "10 in Texas," the X being the Roman numeral for 10, the I standing for "in" and the T for Texas, based on the fact that the ranch once covered 10 counties in Texas.

Only one man has ever been known to become lastingly famous through failure or refusal to use the insurance available to him in cattle branding. He was Samuel A. Maverick (1803-1870), a Texas pioneer, rancher and member of the convention that established the Republic of Texas. Later, he was mayor of San Antonio and a member of the first legislature of the state of Texas. Although he owned and operated a 385,000-acre cattle ranch, he never adopted the practice of branding his calves. Thence comes the term "maverick," first applied to an unbranded, stray or motherless calf and sometimes applied to mean something acquired dishonestly, by expropriating another's unmarked cattle or unoccupied land. Now, 100 years later, Texas can point to another of its ranchers, Vice President Lyndon B. Johnson, as the nation's most prominent proponent of branding. ⊙

Commissioner Timmons is overseer of an industry employing more than 12,000, annual payroll $55 million.

TIMMONS OF IOWA

IOWA'S TALL CORN is famed even in Russia, but William E. Timmons, Iowa commissioner of insurance, would have the whole world know that the state's insurance business is even more giant-sized with an income three times what Iowa farmers get for their annual corn crop.

Furthermore, the 901 insurance companies are operating in a state economy with an industrial output twice that of the total for the famed corn, hogs and other agricultural products. Comparative figures for the most recent year of record are approximately $5 billion for industry, $2.5 billion for agriculture.

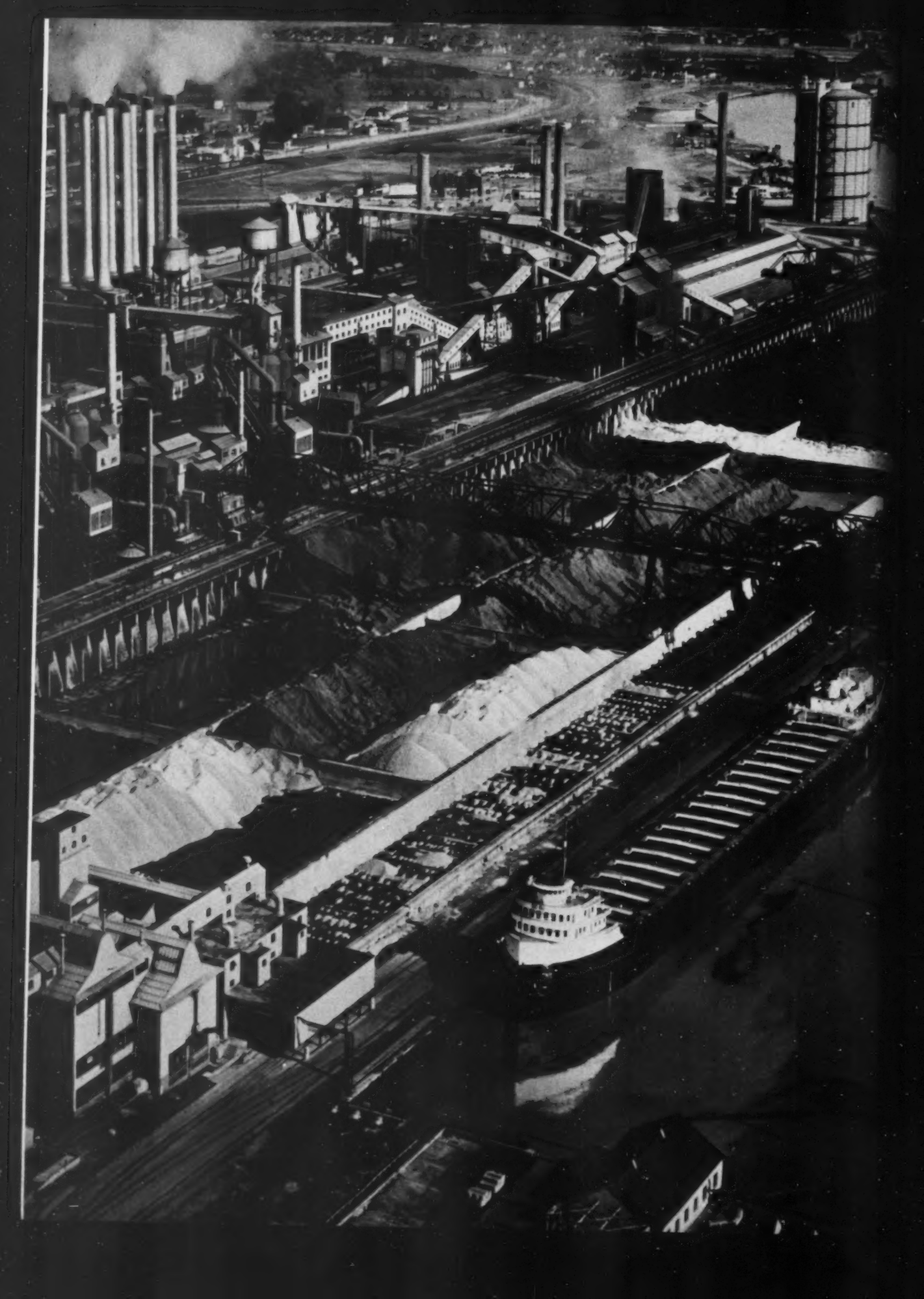
As the nation's 29th state, admitted December 28, 1846, Iowa now claims 17 "firsts" of the nation, all in the field of agriculture, and 31 "largest" ranging from cereal plant to producer of aircraft fuel flowmeters and oxygen equipment.

Twenty-five per cent of all the Grade A land in the U. S. is in Iowa, but settlement of this "middle border" was accompanied by economic and social effects giving rise to the Granger movement and to the third-party Greenbacks, Populists and progressives. John Brown, of abolitionist fame, headquartered in the state for a time, and Herbert C. Hoover, first president to be born west of the Mississippi, is a native son of West Branch. Grant Wood has memorialized the state in art; authors Ruth Suckow and Paul H. Engle have done it honor in fiction and poetry of note.

Fame, along with misfortune, also has come to the state on the wings of windstorms and tornadoes, for Iowa has more than any other state except Missouri. Mutual insurance early came to the rescue with the incorporation of the Iowa Mutual Tornado Insurance Association in 1884 as the nation's first farmers' mutual company specializing in insuring against the windstorm hazard. Today the company is one of Iowa's 224 home-state companies whose assets total more than $2½ billion. The total of 901 insurance companies doing business in the state represent a multibillion-dollar bulwark that has doubled in size during the past decade in providing coverage for Iowans, their families and property.

Commissioner Timmons, a native of Wisconsin, is a four-year appointee for a term ending June 30, 1963. A lawyer, he holds degrees from Loras College, Dubuque, and from Georgetown University, Washington, D. C. He was admitted to the Iowa bar in February, 1951; entered general practice in Dubuque that year and served as first assistant attorney of Dubuque county for six years. During World War II he served in the Army Air Force attached to the 20th Air Corps in the Mariana Islands.

He is a member of the Iowa Bar Association, Dubuque Bar Association, Knights of Columbus, Elks, Dubuque Press and Radio Club, Northeast Iowa Peace Officers Association, vice commander of the American Legion and a member of the Governor's Commission on Human Relations 1957-59. He is now serving as chairman of zone four in the National Association of Insurance Commissioners. ⊙

Iowa Development Commission

An industrial newcomer on Iowa corn land is Aluminum Company of America, Davenport. State has two of largest aluminum works.